THE FARMERS' REGISTER.

VOL. IX. FEBRUARY 28, 1841. No. 2.

EDMUND RUFFIN, EDITOR AND PROPRIETOR.

ADDRESS OF DR. W. S. MORTON, PRESIDENT OF THE AGRICULTURAL SOCIETY OF CUMBERLAND.

Delivered 13th Nov. 1840—Published by order of the society.

Gentlemen.—The unusual pressure of professional engagements has, of late, left me but little time to prepare for an address, and led me to fear that the day of meeting might find me totally unprepared. But this fear, though unpleasant, has not caused half such anxiety, as the apprehension that, from apathy in the cause, so few members might attend, as to render preparation unnecessary. What should be the grounds of such apprehension is not difficult to divine. Unbounded political excitement appears to have absorbed the feelings of all ranks, ages and sexes of society. But few seem willing, even for a short time, to confine their attention to any other subject. With general politics, as a subject, this society has nothing to do; and were I, or any other member to introduce it, with party feelings, or a design to produce party effect, I trust that it would be promptly and decisively rebuked by a vote of censure. But remarks, honestly and impartially made, in relation to the awful bearings of political strife, on the highest enjoyments and richest blessings of life, unconnected with party feeling, and undefiled by a cunning design of indicating any party or any individual, surely cannot be improper. There is no greater obstacle to our prosperity and happiness, as men, as citizens, and as agriculturists, than party spirit. Freedom of opinion, freedom of speech and of the press, have justly been considered among our greatest blessings. Their abuse is, of course, the heaviest curse. The purer and more valuable a coin, the baser is its counterfeit. The most enlightened statesman, or the humblest citizen in the land, has a right to speak his opinions freely, if they are honestly formed. And even zeal in their propagation may fairly be ascribed to patriotism. But he knows not the meaning of that word, who, forgetful of the cause of truth and of his country, and mindful alone of his own selfish and petty interests, and his allegiance to party, abandons the field of fair argument, and resorts to private abuse and personal detraction, to the propagation of calumny, to every art calculated to mislead and deceive, to excite the worst passions, and destroy the peace and happiness of the community. Such a man cannot be a patriot. No—he has a fair claim to the title of a selfish demagogue—a reckless and mischievous agitator. The pure cause of republicanism needs no such combatants and no such weapons, but is in continual danger from them. In times of political ferment, the tendencies to such evils are insidious, and they are strong. Even good men are liable to be misled—else, why is it, that all complain of them and dread their consequences, while none are willing to bear the blame? Why is it, that so many of our best and ablest men avoid the political arena, as they would pollution? Why is it, that while we all profess to be republicans—to hold nearly the same doctrines, we so often feel the earthquake agitations in the very foundations of society, and dread some awful and ruinous explosion? It is because party spirit, like some horrid demon, is stalking abroad in the land, devouring and poisoning all that is good. Where is the remedy for such evils to be found? Not on earth—it is a pure spirit and dwelleth on high. The spirit of love alone can vanquish the vile spirit of party. It is that spirit, without which, though a man "speak with the tongues of men and of angels," he is "become as sounding brass or a tinkling cymbal." The great fabric of society is built up of many members, and the individuality of each must be lost, by being cemented together by the pure spirit of love, in order to render the whole sound. This is the true theory of society, for it is derived from holy writ. While "*E Pluribus Unum*" waves gloriously on our banners, its meaning, to the fullest extent, should be engraved on our hearts. A propitious time, it is hoped, is approaching to lay the fell spirit of party. The wild tornado of excitement which has recently swept over the land, must surely be followed by a calm, during which, the wise and good may have time to reflect on the difference between party and country—men and principles. Should they refuse to afford themselves as mere fuel to excitement, there might be some hope that the salamandrine agitators would be starved out, from the deprivation of their natural element. The return of peace, after such a civil war in disguise—as disastrous, perhaps, in its influences on the moral condition of society, as actual warfare—would be cheering to every true patriot. Should the state of hostility continue, gloomy indeed must be our forebodings.

But we will turn from this fearful subject, to some more directly within the province of our discussions. In doing this, gentlemen, permit me to hope that we will renew our devotion to the objects of our society. They are worthy; and the more industriously they are pursued, the more peace and happiness will they afford.

Laying no claim to the character of an efficient and practical agriculturist, I find myself, on such subjects, much in the condition of a certain preacher, of very exceptionable character, who was in the habit of closing his discourses, by charging his auditors, by no means to do as he did, out of the pulpit, but to do what he told them, when in it. I could do but little good, by telling you all or any thing I have done. I might, however, afford considerable amusement, could I bring myself to confess what I sometimes schemingly hope to do. I hold, that it is not the practical man alone that can render service to a society like this, or to the community at large. Even the visionary schemer, into whose class by the way, I am not willing fully to enrol myself, may often do much good to the shrewd and practical, if they will cull from his hints or experiments, what seems to be supported by reason. Like the daring pioneer in a wilderness, he sometimes unfolds valuable discoveries to

the more cautious who follow him. I believe that, on investigation, it would be found that but few of the most valuable discoveries in the arts of life, have been made by prudent, calculating, practical men. Labor-hating propensities are admirably calculated to set the wits to work, on the discovery of labor-saving expedients. It ought, however, to be acknowledged, that the class of men, usually stigmatized with the name of *schemers*, are not, generally, much influenced by the desire of gain. Some of them, indeed, are actuated by the highest motives. It is no matter of surprise that such are not, what are usually termed, thriving men. Those who expect nothing are rarely disappointed.

In previous addresses, I have dwelt at some length on the ordinary operations of farming in this region. I will now make a few remarks on the various kind of stock and their management.

In Virginia, so much attention has been paid to the horse, the noblest of our animals, and books on farriery are so common, that all who desire information on this matter, may easily obtain it. I would only observe, that many of our teams are destroyed, and most of them much injured, by overpressure of service in very busy seasons, particularly in the spring of the year, and while fallowing for, and seeding wheat in the fall. No animal can long sustain labor, without serious injury, which is so brisk as materially to hurry his respiration. He who pushes his horse onward, while panting with fatigue, subjects himself to the reproach of inhumanity, and very probably, to what such a one will feel more acutely, the loss of the animal. The error of most proprietors consists in confiding horses, without the necessary supervision, to the tender mercies of those, who neither know nor care how much these animals can, with safety, bear.

In the management of cattle, in middle Virginia, inattention, on the part of the master, to their comfort is as manifest, as it is in regard to that of horses. Indeed, I believe, it is much more common. Until a very few years past, scarcely any one thought of feeding cows upon any other, than what one of our worthy members called "the *bran* and *shuck* system." Indeed, there were not many who cared to provide bran; but it was generally thought, that the offal of the small grain crops was all-sufficient for cattle. It is pleasing to observe some improvement in this matter; and as the returns, both in profit and comfort are so great, it is hoped that this subject will soon attract the attention it deserves.

On the subject of cattle raising, a question has been started, and, to judge from the practice, settled in this region, on which the propriety of keeping much stock of this kind depends. It is, whether the fertility of land can be better preserved and increased, by the aid of cattle, in converting speedily into manure, the offal of crops, grass, &c.; or, cattle being dispensed with, and the land being relieved from the injuries of tooth and hoof, it might not more rapidly improve from the natural decay of such of its productions, as, in the other case, would be appropriated to the sustenance of cattle? With the attention usually paid to cattle in this region, I would readily admit the truth of the latter branch of the question. I consider that there is almost no attention paid to these animals. Their summer pasturage is not always good. Indeed, the attention paid them during seven or eight months of the year, is only to keep them out of mischief. Except this, and they are left pretty much to scuffle for themselves. Their winter keep consists of corn-tops, shucks and wheat-straw, and these, if the weather be bad during their preparation, make miserable food; and even when in the best state of preservation, are only calculated to carry the majority of their consumers through the winter. In addition to this, some provide for their milch cows, very closely bolted bran, which, with a few cabbage leaves and turnips, if they happen to be on hand, will furnish a quantum sufficient of blue milk to get along with during winter.

The management of manure is about as careless as that of its producers. In summer, most people move their cow-pens often enough to make a turnip patch of tolerable size. To do more than this, would interfere too much with the tobacco crop. In winter, since the publication of 'Arator,' I believe a majority of farmers construct what is called a farm-pen, and some of them haul into these some corn-stalks and some leaves. But many permit their cattle to roam through their farms, poaching the land, and trampling the wheat in wet weather, and seeking a cheerless shelter among the young pines; or, if these be wanting, lowing, by the leeward of a worm-fence, in tones that should make their master's heart ache. Under such management, it would be unreasonable to expect the manure made to be an equivalent for the expense and damage incurred from the stock. It should be remarked here, that there are very numerous and laudable exceptions to the foregoing modes of management.

In attempting to draw the other side of the picture, we will be compelled to go a little into the regions of fancy. Having never seen cattle managed as they ought to be, it is difficult, either to point out the means, or to conceive the full amount of benefit from the increase of manure and of milk, butter, meat and leather. Manure has been pronounced the farmer's sheet-anchor. It is to him, as capital is to the money-lender. It may be suffered to lie idle and waste, or it may be so managed, as to bring compound interest. And there is here no law limiting the rate. The man who enriched five acres more than his neighbor this year, receives in the crop more profit, and has so much added to his capital, which, for years to come, under proper management, may be increasing his means of enriching more land, while it is constantly adding to his profits. The oftener this sort of capital is turned over, the better. And herein consists one of the benefits of cattle. They enable us more speedily, to convert into manure, the offal of the crops, the artificial grasses, or the spontaneous productions of the earth; and thus, generally, these yield interest one year sooner, than if left to the slower process of natural decay. It has been said, that as much is abstracted from the value of the manure-making material, for fertilizing purposes, as contributes to the sustenance of the animal. This is doubted. But admitting it to be true, the residuum, after nourishing the animal, is in so much better condition for immediate use than the raw material, as more than to remunerate the loss. If all the manure from one cow for a whole year could be properly applied to a given portion of the land, it is believed that the succeeding crop would be much greater, than

from any application of the food consumed by the cow, for the same length of time; and moreover, that the increase of crop, beyond what the land might have produced, without the manure, if of a suitable kind, would be more than sufficient to sustain the cow another year. It is admitted by all, that any ordinary land may be improved by returning to it, as manure, the whole of its crop. Here the land receives more than it has given off, doubtless from the astmosphere, the vegetation having drawn thence part of its sustenance. Is it not equally probable, that in the economy of nature, animals being in a higher grade of creation, may also be permitted to return to mother-earth more than they draw from her? They certainly, very materially modify the raw material, by animalizing it, to use a modern term.* The fact, I believe, does not bear contradiction, that for success in the production of certain crops, wheat for instance, animal manure is absolutely necessary. May not the scarcity of this, be one reason for the general failure of our wheat crops of late years? I have known a very industrious and successful planter, recently dead, who, preferring to give back to his land its product, during its year of rest, determined to keep no cattle, except a milch cow and a yoke of oxen. He had also to determine, in a very few years, to aim at making no wheat, except for family use, in a lot or two near his stable. He has repeatedly told me, that his land, though very good, would not yield wheat. I judge it was from the want of animal manure. Our limits would be transcended, were we to go into an investigation of the best modes of making, preserving, and using manure. The object at this time is, to urge the necessity of keeping on every farm, a sufficient stock of cattle for its production. This cannot be done to advantage, without making very great changes in the arrangements and management of our farms, as regards their comfort and support. These changes cannot, with propriety, be made very suddenly. All general changes, to be safe, must be gradual. Very few of the experimenters have, as yet, learned to make good wine in this country. When, if ever, we shall generally cultivate silk successfully, is yet to be learned. But the necessity for caution in any enterprise, is no argument against its practicability. The question which constantly meets us must be answered—is there necessity for a change? Is the old way *good enough?* Let our empoverished fields, our lean kine, our shabby sheep and hungry hogs answer. An increase of manure would remedy many evils. Of this, I have said enough. As to other inducements, consisting in a plenty of milk, butter, meat and leather, I am sure I need say nothing, if I can only tell how they can be obtained.

* This question merits full and mature investigation. It is not doubted, that vegetables return more than they take from the earth. Could it be demonstrated that animals do the same, what a display of the wisdom, power and goodness of the Creator would be afforded? The atmosphere would then appear as the grand labaratory, in which is prepared the food of all living things; and he, who has made the world out of nothing, is here seen, by a mysterious perpetuity of changes, affording to all things sustenance, in a supply limited only by the skill and assiduity of man, in adapting the means to the end. The votary of agriculture, while drawing his support from the earth, has presented to him innumerable lessons of the soundest theology, and incentives to the purest piety.

In the first place, we must have more meadows, and we must consume their products on our farms. If we have no meadow lands, we must cultivate on high land some kind of crop, with a view to the better sustenance of our stock. Besides the artificial grasses, the root crops and pumpkins and other vines promise to aid us much in this matter. The turnip, which in the moist climate of Great Britain, has done so much for agriculture, will rarely succeed here. Our climate is too liable to drought in the fall season for this root; but I can most confidently recommend the beet. I have been cultivating this crop for stock, on a small scale, for some seven or eight years, and have never experienced a failure. My best crops have, however, been invariably produced in the driest years. I believe that six or eight times as much food for cows, sheep, or hogs, may be produced from the same quantity of land in this crop, as in any other that I have ever tried. The kind which I greatly prefer, is the white Silesian sugar beet; it withstands cold much better than the mangel wurtzel, and, I believe, is more nutritious. I received a few seed in the fall of 1836, from my friend Mr. Ruffin, of Petersburg, and have scattered them largely since; with what benefit to my friends I cannot tell, but to myself, I consider them almost indispensable. I believe that no man, who would provide a plenty of beets or pumpkins to feed his milch cows for one winter, could be satisfied without them afterwards. The recommendations of the beet as food for stock, in our agricultural journals, are so strong and so respectable, as to render a refusal to try them, by those who love economy and comfort, quite inexcusable. Their product is prodigious on the richest land, and they are well worth cultivating on that of medium quality. If the introduction of turnip husbandry into England, is considered there the greatest era in their agricultural history, we may well be thankful, that a root, much richer and more productive, is found so well adapted to our arid country. There are two things specially to be attended to in its culture. The soil should have a clay substratum, and the land should receive a thorough winter or fall ploughing, to destroy insects. I lost every young beet on three-fourths of the land planted last spring, from neglecting to plough in the fall. I made out a fine crop, however, from transplanting.

It can hardly be necessary, in this society, to make any remarks on the importance of attending to the breed of cattle. I know it is very common for people to ridicule the idea of its importance, and to indulge in the idle slang, "that the feed makes the breed." But these very people will sometimes send twenty miles for a puppy of a good breed when they want a good dog. Without the *feed*, I know that no breed can be good; but some breeds will be a great deal better on the same feed than others.

Cattle should not only be well fed, but well sheltered, to promote their own thrift and comfort, and their master's profit.

On the subject of sheep, I have but little to say. They pay well for a little attention. They should be penned every night, for the sake of their manure, and to protect them from dogs and other marauders. The number kept on a farm, should about equal that of the persons in the family. On an average of children and adults, one sheep will

about furnish wool for one person. At about five years old, a fracture occurs in the two middle lower front teeth, forming a notch between them. After this they should be marked for mutton, as it is very unprofitable to keep a flock of old sheep. One lamb should be "turned out" in the place of every mutton killed. Any extra lambs may be killed. The ram should be changed annually, viz.: if one can find among his friends and neighbors any sheep worth breeding from. In winter they should be sheltered from the inclemencies of weather; and the ewes, especially, should be well provided with succulent food—such as beets, turnips, carrots, or cabbages, particularly if the ground be covered with snow. Lambs can bear cold as well as any animal whatever, after once standing on their feet. Their great mortality in winter generally arises from want of milk, which the kind of food recommended for their mothers will ensure to them.

As to hogs, gentlemen, after what passed at our spring meeting,* it might little be expected, that I should undertake to say much about *them*. It is, perhaps, my duty, however, to say that I have found a remedy for the evil, then complained of, which is simply to provide the sows with the greatest possible variety of food; and also, to furnish them, by way of condiment, occasionally, a little salt, sulphur, rotten wood, charcoal, shop-cinders, &c. I now believe, if you will permit me to boast a little on this subject, that I have as fine a parcel of young hogs, the offspring of the self-same sows, so much abused in the spring, as can be found in the country.

If we ever succeed in raising hogs profitably, it must be on other kinds of food than dry corn. I do not believe it could be done on the old Virginia plan, in the richest regions of the west.

Permit me, gentlemen, in conclusion, to tender you my best wishes, and once more to urge, that we earnestly endeavor to make the society as useful as possible, and especially to make it a bond of union among ourselves, which the corrosive feelings of discord shall never be able to dissolve; and among those around us, a nucleus of love, which, like a "little leaven," may exert its softening influences far beyond the place of its origin.

*At the meeting in the spring, the author of the address having complained that he was nearly foiled in his attempt to raise hogs, by the propensity in his sows to eat their own pigs, became the subject of much pleasant raillery from a very particular friend, who urged as the only proper course, that such unnatural mothers should be killed, and their places supplied by a better breed. This was, however, not adopted, as, excepting the great fault complained of, the breed was particularly a favorite one; it is a cross of the Bedford and Chester. The few hogs raised, were uncommonly fine ones. By noticing the time when the sows might be expected to farrow, and giving them for two or three weeks beforehand a plentiful supply and variety of succulent vegetables, and occasionally some of the condiments recommended above, I have been able to save, since last spring, about forty beautiful shoats, without having one devoured by its mother.

The food early in the spring, besides a little corn, and but a little, may be beet and turnip, and other roots which may have been kept through the winter. A little later, it may be clover and other grasses, and almost all kinds of weeds. Through the summer and fall it may be cimblins and other refuse from the garden and kitchen, and in their season, pumpkins constitute a superior kind of food for hogs. The sows should be permitted to have pigs, in this climate, only between the first of March and first of October. Winter pigs are not worth raising in the richest part of Kentucky.

He who has enjoyed an opportunity of observing the snug arrangements made by more northern farmers, for comfort to the stock and profit in the raising, will be at no loss in accounting for our great failures in this matter. In stock-raising, as in every other human concern, success is the reward only of diligent and zealous effort. Who gets rich, besides those whose hearts are much devoted to the object? In middle and lower Virginia there is much laudable industry and enterprise manifested in the mere production of crops. This is followed by success, but generally, at a vast expense in the impoverishment of land, the destruction of teams, and total negligence of stock. Providence has placed under our management a wonderfully complicated system, which, for completely beneficial results as a whole, depends upon rigid attention to all its parts. Few proprietors study and practise this system as they should, and much fewer overseers. Fortunate is he, who can obtain and keep one who will faithfully do this. Both modest and heroic was the reply of the gallant Gen. Miller, when asked if he could achieve a certain military exploit, "I will try, sir." In these *motto-loving* days, this should be the motto of every farmer and overseer in the land. We could then do much more good to our country, than by being all rabid partizans in *politics*, which might safely be trusted to our blessed representative system.

AGRICULURAL MEETINGS AND DISCUSSIONS.

An excellent practice, for the advancement of agricultural information, has been introduced in Massachusetts, and which we should rejoice to have copied and properly carried through, in Virginia and other southern states. We allude to the meetings of agriculturists which are held weekly during the winter in Boston, brought together merely upon the request and general invitation of the State Agricultural Commissioner, and by the voluntary action of the farmers who choose to attend, whether as auditors only, or to participate in the discussion, and to furnish their share, as well as to receive benefit from the information elicited from others. The agricultural commissioner (the Rev. Henry Colman,) designates and gives previous notice of the subject for discussion, and on which verbal information is desired at the next approaching meeting; and he presides at the meeting, or at least, so far leads in the proceedings, as to put the body to work. There seems to be nothing more of form, and no constraint, except, of course, such as is necessary to preserve order in debate. There are neither essays nor addresses, nor formal speeches delivered. Each member, as in common and unreserved conversation, and at such length as is requisite, and in plain language, states his opinions or his practice, and answers any questions or objections that may be put; and, in this manner, it may be presumed that all the

light is drawn forth that the individuals present can furnish. An essential member is a reporter to note the material facts and opinions stated by each individual, for subsequeut publication. For this, there is no difficulty in Boston, as there are there, besides the commissioner, no less than three editors of agricultural papers, who participate in the discussions, and all of whom report the proceedings.

We have frequently, heretofore, republished extracts from the proceedings of these meetings, and shall present the report of the last, to follow these remarks, as a sample of the usual procedure.

It would be a capital addition to all that is now done by our existing agricultural societies, to hold, and report for publication, discussions of this description. There is not one society, (even though the most silent and therefore the most inefficient heretofore,) of which there are not sundry members, whose opinions and facts, thus expressed, would be highly interesting and useful to their brother agriculturists in general. We earnestly urge upon each and all these societies to adopt this course, for at least one meeting in each year, and in addition to, (and by no means in substitution of,) any useful labors heretofore performed by them.

But such meetings are peculiarly appropriate, and likely to be most beneficial, at the seat of government, and during the session of the legislature. The number of agriculturists there present, both members of the legislative body and others, though residing and farming in remote districts, would add much to the variety and value of the subjects treated, and to the interest of the proceedings.

An agricultural and horticultural society for Henrico, has been just formed, of agriculturists principally laboring in the vicinity of Richmond; and under auspices and direction from which we hope for much better results than the ordinary course of agricultural societies in Virginia. The formation of this society offers excellent means to introduce easily such agricultural meetings and discussions as are above recommended; and the society, acting in concert with any number of voluntary and temporary assistants and auditors, might hold meetings in Richmond, frequently during the winter, to very great advantage. We shall place this article in the hands of the officers of that society, as early as possible. If they should think it advisable to act upon the suggestion, we will be glad to take part in their free and informal discussions, and to report all *useful doings* of such meetings through the Farmers' Register. We know that there are members of that recently formed society, who, though they have never written any thing for our pages (and perhaps never will for any publication,) as practical and successful cultivators, possess knowledge, which well deserves being made known to the agricultural public. If these persons (as is the case with the far greater number of the good farmers of the whole country,) cannot be induced to *write* their facts and opinions for publication, let us endeavor to draw them forth in free conversation. And if there is any attempt for this purpose, we farther take the liberty of urging the society (on these occasions, at least,) to avoid all regularly prepared addresses, which are, in most cases, merely essays on agricultural things in general, and on nothing particular, and of no use and no effect, except as substitutes for, and dampers to repress and extinguish, all other and more useful efforts.—Ed. F. R.

Second Agricultural Meeting at the State House.

On Thursday evening last, the organization of the meeting was completed by the choice of

Hon. Daniel P. King, of Danvers, *President.*

Allen Putnam, of Danvers, *Secretary.*

Committee of Arrangements.—William Lincoln, Worcester; Horace Collamore, Pembroke; Cornelius Delano, Northampton; Calvin Cooley, Hawley; John Prince, Roxbury; Andrew Dodge, Wenham; Asa G. Sheldon, Wilmington; Hon. Isaac Hill, Ed. Monthly Visitor; Mr. Buckminster, Ed. Boston Cultivator; Mr. Cole, Ed. Yankee Farmer; and the president and secretary, *ex officio.*

Subject for discussion, as previously announced was *the Cultivated Grasses.*

Mr. Colman, Agricultural Commissioner, stated that there are more than 600 such grasses, but that he should confine his remarks to a few of the more common. Herds grass or timothy yields well; two tons to the acre is a good crop, though four tons have been obtained; it is an enduring grass, lasting 6 or 7 years, after which period it is best to turn the sod; cattle are fond of it. Would sow 1 2 bushel seed to the acre; no harm in sowing more; when thick the hay is finer; moist but not wet soil best suited to it. According to chemical analysis it is most nutritious if suffered to ripen before it is cut, though our animals like it better when cut young.

There are two kinds of Dutch clover, northern and southern, differing in the time of their ripening. The broad leaves take much nourishment from the atmosphere, and the tap root when it decays furnishes nutriment to the other grasses. It ameliorates the soil. As food for stock it is inferior when cured in the common method, i. e. when allowed to become nearly ripe before cutting and then dried thoroughly in the sun. Some practical men maintain that if cut younger and made in cock, its quality as food is as good as the other grasses. The southern, though less productive than the northern, is to be preferred; makes better hay; should be sowed in winter or spring and not in autumn. It is valuable as a green crop to turn in; if it be rank, roll and harrow before ploughing, and then it can be easily

turned under. Should it be *green* or *dry* when turned in? The field of one man who tried it in both states, indicates that the dry is best: 4 to 6 lbs. of seed to the acre. There is one objection to it as pasturage; horses are salivated or made to slaver by its use.

Red-top is as good as any grass; good for milch cows and horses; requires a soil that is *not wet:* 3 to 4 pecks of seed to the acre. Orchard grass grows quick; can be cut frequently; is sweet; the cattle relish it. Lucerne is good for soiling; may be cut 4, 5 or 6 times a year. Must be tilled the first year or the weeds will kill it; lasts 8 or 10 years. A small plot may be cultivated to advantage; will not do on wet soil; from 16 to 18 lbs. of seed to the acre.

Gypsum, as a top-dressing, 1 bushel or 1-2 bushel to the acre, once in two or three years, is in many places very serviceable. Is not fully satisfied as to the utility of lime. Saltpetre has been used to great advantage. Wood ashes are good, but in great quantities will cause moss to grow, particularly in moist or wet lands; peat ashes will do the same. Eel grass, kelp, rockweed and salt hay are good top-dressings.

Mr. Buckminster, Editor of the Cultivator, agreed with Mr. C. in most respects, yet differed from him in a few points. Thought clover, pound for pound, as good as herds grass; recommended sowing them together; and cutting so early that the clover *stalks* (the principal part) should be good fodder. Clover, no doubt, is a good crop to plough in, but the difficulty is to get crop enough to be worth ploughing in. Buckwheat will answer better for this purpose on poor lands; he doubted whether it is well to let the crop dry before it is turned under. Was in favor of cutting English grasses young, but thought that our wet meadow grasses were worth more if not cut until they were ripe. Had sometimes sown hay seed among corn at *hilling time* (no *hill* made) and found it to do well.

The Editor of this paper had never heard before that *clover* would *salivate* the horse. On one side of his father's farm the horses found nothing that produced this effect, though clover was often eaten by them there: on the other side lobelia grows, and there the slobbers or slavers are produced. He stated one or two facts from which he was inclined to infer that clover hay was better than red-top for producing *milk.* Also, he gave an account of the sowing of hay seed among corn; the substance of which may be found in No. xxviii. of the present volume of the N. E. Farmer.

Mr. Collamore, of Pembroke, stated that by the application of compost top-dressings in the *spring*, he had sometimes (in dry seasons) done more harm than good; has found it best to apply them in the autumn. Sea weed he thinks not valuable; but kelp and rock weed are. Ashes should be spread on sandy loam. Lime is sometimes serviceable; it should be used in compost.

Mr. Cole, of the Yankee Farmer, expressed the opinion that the salivation of the horse might be produced by something else than either clover or lobelia. The remainder of his remarks we do not retain; but as the meeting adjourned while he had the floor and as the same subject will come up at the next meeting, we hope then to preserve what he may offer.

BERKSHIRES NO LONGER BERKSHIRES.

From the Farmer's Cabinet.

Mr. Editor—I am an old hog-breeder, and have always supposed that I knew a thing or two, but I confess that I am now all at sea on that subject. The time was when a good hog was not measured by the number of white feet which he possessed, or the quantity of white hair that he sported in his tail, but by something of much more importance: I find, however, we were all wrong—no Berkshire can be a Berkshire with less than three white feet and a white top to his tail—"so says the book, and therefore it is true."

Now, I have observed, through a long life, the truth of an old aphorism, which I used to write, as a copy, when a boy at school—"what is violent is seldom permanent"—and the Merino, the morus, and now the Berkshire mania, all are proofs of the truth of the old adage; they have all been too violent to be permanent, and should be held in remembrance, as a warning against future speculations.

Well, then, Berkshires are no longer Berkshires, but *improved* Berkshires! So they can now be black, red, tawny, white, spotted and speckled, and yet be quite pure and perfect blood—in short, *improved Berkshires*—leaving the old breed quite out of the question—then I would say that Benjamin Cooper, of Camden, N. J., has about the best hogs in this country, and they deserve the character which J. G. has given them in page 382, vol. 4, of the Cabinet, the perusal of which account induced me to go and view them for myself.

It is a pity the game is likely so soon to be brought to a close, for I have half-a-dozen young friends, who were just ready to dash into the speculation, each prepared with his *Bement or Lossing*, and a pedigree as long as my arm, and all of the right color too, to a hair; but Mr. Samuel D. Martin's letter, in the Franklin Farmer, has, or I am much mistaken, blown up the Berkomania, and will quite spoil the trade. He admits that the genuine Berkshires were red, with black spots—indeed, that is undeniable—but he contends—which is as *deniable*—that they were a coarse hog, with large ears and curly hair, a great consumer, but that would attain a large size, (now what on earth was there in such a hog desirable to breed from?) and, therefore, he would make it appear, that every good quality of the present improved breed was obtained from the Eastern or Chinese hog, of which there were two varieties of colors, the white and the black. Professor Low, however, contends that the color of the *modern* Berkshire is still a reddish brown, with dark spots; many of them, he says, are nearly black, manifesting their near approach to the Siamese character, and sometimes they are black, broken with white, but not a word does he say of their being quite white; although he admits that from this intermixture it becomes, in many cases, difficult to recognise, in the present race, the characters of the true Berkshire—and yet Mr. Martin has a white imported boar, of the *improved* Berkshire breed, although he does not claim for him that he is an original Berkshire, but that he is an *improvement* upon that breed, by the eastern crosses. But all this while Messrs. Lossing and Wait attach great importance to their pigs' coming

direct from Berkshire, and of being the *only* pure blood, although they have never imported, by any chance, any of the original red and black color; and they brand all those with contempt that are not black and white, with the given number of white feet and white hairs in the tail.

But Mr. Martin says, although red and black was the original, and has always been the prevailing color, of the real Berkshire hog, yet, *thirty years* ago, there were white and black ones amongst them, (he must then mean, I presume, amongst the original breed,) and that he considers it, therefore, perfectly idle to say, that in an animal that is white and black, a few hairs of the one or the other color, in this or that place, constitute a genuine or a counterfeit—and so say I—but this is robbing the milk of all the cream, for, as I have often seen, much more importance has been attached to their color, than to any other qualification.

So then, it appears that every one has been breeding his own *improved* Berkshires! And that, in short, Berkshires are no longer Berkshires! I shall, therefore, *no longer* expect to see people shelling out their dollars for very inferior pigs, merely because they have been bred by such and such gentlemen, without regard to much besides the color of the feet and tail! And it comes at last to this—a good hog, any more than a good cow, cannot be of a bad color.

Let it not, however, for a moment be supposed that I wish to detract an iota from the value of the Berkshires—they are most excellent as a cross with our own swine-stock, and have done, and will do, infinite good; but, really, the nonsense which is bandied about in all sorts of ways and all about things of the most trifling importance, is perfectly surfeiting, and reminds one of the old couplet,

"Strange, that such difference there should be
'Twixt tweedle-dum and tweedle-dee!"

JOHN DILLON.

ROHAN POTATOES.

From the Boston Cultivator.

Dracut, Nov. 18, 1840.

Mr. Editor—Having heard much said respecting the Rohan potatoes, their extraordinary producing, &c., I will endeavor to state some facts, from what experience I have had the past season. And should you deem them worthy of notice, have no objection to their being published in the Cultivator. And I should like to hear from others who have fairly tried the experiment. The Rohan potatoes unquestionably excel all others in size, as it is not uncommon for them to weigh two and a half, and even three pounds each. But this is no very great encouragement to raise them if they will not produce any more in weight or measure from a given quantity of land. I have tried the experiment fairly, without prejudice, and am well satisfied that they will not produce so much from the same ground, as the long reds. And no one, I think, will deny that they are sufficiently large for convenience; and I think their quality much better.

In the first place, I prepared the ground in the best possible manner, for a large crop, manuring it very highly. The potatoes were planted in drills, at a distance of about three and a half feet apart. The piece of ground measured something more than one fourth of an acre, and was planted with Rohans, with the exception of ten rows, for the experiment. These rows were short, only a little over five rods in length. The two first rows next the Rohans were planted with long reds, precisely the same as the Rohans; that is, the potatoes cut into as many pieces as there were eyes in them, the pieces being planted at a distance of about one foot from each other.

When they were dug, I found the Rohans produced three and one fourth bushels to a row, and the long reds three and one half, as near as they could be measured. The next two rows were long reds, planted as we usually plant them, that is, a common sized potato cut into four pieces, but planted the same distance apart as the Rohans. These, when dug, produced a little over four bushels to a row. The next two rows were planted with the common blues, as the Rohans. These produced about two and one half bushels to a row. The rest of the rows were planted with blues, as we usually plant them; they produced a little over two and three fourth bushels to a row; not so much as the reds or Rohans. Last year many tried the experiment, to see how many they could raise from a small quantity, and were surprised at the enormous quantity thus obtained; but when we take into consideration the attention we generally pay to any new thing that we get it is not very wonderful. When we get any thing new, we are very sure to plant it on the very best land, and take the best care of it. Last year I planted one pound of Rohans, and raised from that pound two and one fourth bushels. To be sure it took but a very small piece of ground to plant them, but they actually occupied a much larger piece of ground; the stalks growing from six to seven feet in length. Thus we see the experiment cannot fairly be tried in this way. What is your opinion, Mr. Editor?

Yours, &c., J. B. V. C.

We have long entertained doubts about the great stories which have been told of the Rohan potato, and we have freely published the opinions of other farmers, since they have given it a trial. Some soils may suit the Rohan better than the long red, and we may well suppose that in these soils the Rohan will produce most; but we seldom see a fair trial of a new vegetable.

In regard to potatoes, the question is, not how many pounds may be raised from one, but how many pounds or bushels we can raise *on the acre*. One kernel of corn will often produce several hundreds—but we choose to inquire how much can be produced on a certain quantity of ground.

There are many good kinds of potato in the country, but for ourselves we prefer the long reds, sometimes called long johns. When these are planted in good season, and allowed to remain in the ground till they are ripe, they are excellent even in the fall; and in the spring they retain their goodness longer than any we have tried.—ED. BOSTON CULTIVATOR.

RAISING PORK.

From the Southern Cultivator.

The raising and fattening of hogs, when good breeds are employed, is considered a very profitable business in the state of Kentucky. Two methods are practised in raising the pigs with us, both of which are thought best by those who follow them.

I will detail both methods. One plan is, never to suffer the sows to breed but once; for this purpose, a particular number (say fifty) of sow pigs, pigged in March or April, are selected, and one boar pig of the same age for every eight sows. These are separated when two or three months old, and the boars kept by themselves. The boars and sows should not be related, on which account it is best to buy the boars or exchange with a neighbor. The pigs are all to be kept well, but the sows are not to be made too fat. About the 10th of December, the boars and sows are put together, and after all the sows are served the boars are castrated. The pigs will come in April. The sows, a short time before pigging, are separated, so as to have but few together, and shelters are provided sufficient for half the number of sows. Some have as many shelters as sows. These shelters are frequently made by laying a rail in a fence corner, and covering it with boards, straw or corn-stalk fodder. During the time of having pigs, the sows should have free access to plenty of water, and a careful person provided to attend to them; five or six pigs are allowed to each sow, and two sows to stay together until the pigs learn to distinguish their mothers. Some keep each sow by herself. After ten days or two weeks, each pig will have learned to know its mother, and the sows are then turned into a large lot, and fed freely whilst suckling their pigs; when they are six or eight weeks old, the old sows are spayed, and another selection made of the best sow pigs for breeders. The boar pigs not intended for use should be altered, and the sow shoats spayed, when eight or ten weeks old. They should be well fed until old enough to turn on clover; and after they are turned on clover, a little corn every day is very advantageous. About the 1st of July they are turned into the rye-field and have also the gleaning of the wheat and oat fields.

The other plan, which is most practised where I live, (Clark county, Kentucky,) is to select the best sows and keep them as breeders as long as we find them profitable; and when they become unprofitable, kill them for pork or spay them and fatten them for sale, and supply their places with young ones. These are bred twice a year, in December and June. Some prefer breeding in October or November, for though from cool weather they may not save as many pigs, they will make their meat of those pigged in February and March that fall, and so save the wintering.

The advantage of the first plan is, that the hogs sold are nearer of an age and size; and having all the pigs at once, they will be of sufficient age to go through the next winter better, and are not as liable to be overlaid by larger ones. It is also much less trouble to attend to sows all having their pigs at once than at different times. The disadvantages are, killing those sows that are good breeders, and having a new set of sows every spring. Every person who has attended to the subject, knows that some sows are much better breeders than others, and that some are also better nurses.

In either case, it is important, where many sows are kept, to keep the sows from collecting in cold weather in large companies, as they are very apt to mash each other so as to make them miscarry.

Pigs that come in February or March, may be made to weigh from 200 to 250 pounds net meat, in the November following, if the boar be of the best improved breeds.

Where many sows run together, when they have pigs, some of the stronger ones frequently take the teat of the weaker ones, and starve them. This can be prevented by separating them.

Very few of our farmers either grind or cook the corn fed to their sows or pigs. From an experiment I made last spring, I am convinced that the pigs would be greatly benefited by having their feed made into mush.

SAM'L. D. MARTIN.

Colbyville, Ky., Dec. 8, 1840.

POOLS FOR WATER—ROTTING HEMP.

From the Kentucky Farmer.

Danville, Ky. 29th Dec., 1840.

Mr. Brown.—The encouragement given in your paper to the hemp growers of Kentucky, has determined me to try the experiment of water rotting my next crop of hemp. Mr. Myerle's account of the process is complete, except telling how the pools are constructed, he gives the dimensions without telling the material with which the pools are encased.

Will you please tell through your paper the best manner of constructing the pools, or the plan that Myerle has adopted.

Yours, most respectfully,

W. W. McDOWELL.

In answer to the inquiries of the above letter, it is only necessary to say that in all the pools which have been constructed this season, no casing has been used. The ground being found sufficiently impervious to retain the amount of water necessary to the process. The most ordinary invention can suggest the size, number, arrangement and locality of pools best suited to each cultivator's peculiar circumstances. Considering alone the convenience of filling and employing the pools, the best locality would be near a spring or branch; if a spring be chosen, they should be placed at such a distance as will prevent the backing of the water into the spring from the pools when full. If a branch be chosen the same result may be effected by raising a slight head in the stream by a temporary dam. A very slight fall should be given to the bottom of the roof, that if possible it may be sufficiently above the water of the branch or outlet of the spring to insure a perfect drainage when the pools are desired to be empty. A gentle current of water is decidedly advantageous. Mr. Myerle advises that the size of the pools be made 20 feet by 40—but if necessary to give a sufficient fall to drain them they may be longer and narrower. If more than one

is needed they may be constructed so that one may receive the surplus water of the other. To prevent caving give the sides a slope at 45°. Each pool should have a gate at each end to control the entrance and escape of the water, and closing the upper should turn the water from the pools into its natural channel, and opening the low ones, drain the pools. It is useless to add more as we have said the construction necessary is so simple any man may plan them to suit his peculiar situation. See Mr. Myerle's publication.

ON THE USE OF QUICK-LIME ON SILK-WORMS, TO PREVENT DISEASE.

Translated from the 'Propagateur,' for the Silk Journal.

"*Crest, (Drome,) Jan.* 1840."

"*To the Director*:--"I had promised you some observations, made during many consecutive years, upon the contagion of the muscardine; but these observations would be superfluous after the excellent article on this subject furnished by M. Bézard. The contagion is a fact too positive to be doubted, and if some persons still contest the point, it is because they have not taken the pains to assure themselves of the truth. I will undertake to communicate the contagion to any worms that may be presented to me, even though they may be upon the point of forming their cocoons. The principle of contagion being established, it remains for us to discover the means of preventing it, and if possible of curing the disease after it has appeared; and I do not hesitate to say that such a discovery would be the most valuable present that could be made to those engaged in the silk culture. Preventive means are in fact insufficient in many instances, as I have been taught by sad experience during the past season. I was perfectly successful in 1837. There were no *muscardines*, or almost none;—about twenty in the whole course of the rearing. Notwithstanding that, as I had suffered considerably the year before. I caused the walls, the ceiling, and the floor of my laboratory to be white-washed anew. The shelves, the ladders and all the utensils were washed in caustic lie, and the eggs were disinfected. I commenced my rearing of 1838, under the most favorable auspices; my worms were superb, and every thing led me to hope for the most complete success. When, in the fourth age, the disease manifested itself. Its progress, although slow up to the time of mounting, soon induced me to predict what happened: I had no harvest. I must confess that I did but little in the way of combatting the disease. I had tried in vain the washing of the leaves in a solution of potash, as recommended by M. Bassi; and the immersion of the worms in this solution was attended with no better success. I contented myself with hastening the maturity of the worms, and keeping the air constantly renewed. The two last ages were spent almost in the open air, the thermometer standing at 17°,* and the hygrometer at 68°. I should not omit in this place the mentioning of a curious fact, viz.: that the mortality was always greater during the prevalence of northerly winds, than when the wind blew from the south.

"From what has just been stated, it will be seen that it is by no means sufficient to take a few precautions such as I have mentioned, since all the preventives imaginable could not secure me from becoming the victim of this terrible scourge of our laboratories in 1838. How precious then would be the specific which would not only present an effectual barrier to the irruption of the diseases, but would also be sufficiently powerful to arrest it after its introduction! The success with which the *smut* in wheat has been attacked by the sulphate of copper, (blue vitriol,) has suggested to M. Bézard, the happy thought of combatting the muscardine by the same means. M. Gaudibert-Barret, of Carpentras, has suggested the use of *lime*, and his testimony is of great importance, since he has not found a single *muscardine* in his laboratory during the ten years that he has been in the habit of applying it, though his neighbors have been often attacked. I adopted his practice last summer, and the result has surpassed my most sanguine expectations. I will give you a brief account of my experiment.

"Notwithstanding the precautions which I had taken, I was observing the course of my rearing with some anxiety, when, after the second moulting, the muscardine broke out with great violence. I thought at once of the lime, and wrote to M. Gaudibert-Barret, who had the kindness to furnish me with all the information I wanted. He told me that the quantity of lime used would render the litter unfit to be fed to cattle.* This caused me to hesitate somewhat, as I did not feel willing to spoil the litter. The mortality continuing, however, I at last sent for the lime and proceeded to apply it. My worms had finished their third moulting, and were entering upon their fourth age. I had no expectation that the disease would cease instantaneously, and, in fact during the fourth age I discovered nearly the same number of muscardines each day; only the disease did not increase, and on this account I kept up my spirits and went on to apply the lime twice a day. The fourth moulting took place. I limed the worms before and after their sleep, and on clearing away the litter, I had the satisfaction to perceive that the disease had almost entirely disappeared, since I did not find more than two dead worms, at most, to each table of thirty-six square feet of surface, I continued the liming, at least twice a day, up to the time of mounting, and the consequence was that my cocoons were superior both in quantity and quality to any that I have ever produced. The report spread abroad that I was covering my worms with lime, and I had numerous visiters. One of my neighbors, among others, came to see the experiment. His worms were hatched the same day that mine were, and were attacked with the muscardine about the same time. I pressed him to use the lime, assuring him, and indeed demonstrating the fact, that the process could not in any case injure the worms. He appeared to be convinced, promised that he would attend to it, went away—and did nothing. Well, what happened? His failure has been as signal as my success. This, my dear sir, has appeared to me to be a very strong

* Reaumur.

* There are several allusions made in the 'Propagator' to feeding hogs, &c., with the litter from the hurdles.

proof, and I shall wait with a good deal of impatience for the opportunity of making another experiment. Of what immense importance would be such a discovery which would assure us the whole of a crop of which we cannot now calculate upon receiving more than one-half, unless we have more than an average share of good luck.*

"In addition to what has been stated above, I must not forget to mention that the litter upon which the lime had been thrown was fed away to hogs as heretofore, and that they were not at all incommoded by it. I used as much as three quintals of lime to seven ounces and a half of seed, [eggs,] and I must confess that after having been so liberal with it I had given up all thoughts of deriving any advantage from the litter, an advantage which is by no means unimportant in our southern establishment. I soon perceived, however, that the greater portion of the powdered lime disappeared while the litter was drying, and provided it was well shaken before it was given to the hogs, it became nearly clean. As to the excrementitious matter, it remains white, but the experience of five months has convinced me that it may be eaten without the least danger to the animals. There is then every thing to hope and nothing to fear. FAWRE-BIGUET."

M. Amans Carrier.

RUTA BAGA.

From the New England Farmer.

Mr. Editor—In the summer of 1839, I sowed 3-4 of an acre of ground with ruta bagas and 1-4 of an acre adjoining with Dale's hybrid. The ground was all prepared alike and the seed sown on the same day. They all came up well, and in the early part of the season Dale's turnip grew more rapidly than the ruta bagas, and promised an abundant crop. But when the roots had attained the size of my finger, they began to rot; and I believe I had not a turnip on the piece worth pulling. None of the ruta bagas died. I concluded that Dale's turnip was a less certain crop than the others, and that I would try no more of them.

About the 25th of June last, I sowed half an acre with ruta bagas. They came up well; but by the time the roots were 1-4 of an inch in diameter, I found *they* were dying. I did not examine them particularly for some days; or, perhaps, weeks, after I made the discovery. When I did examine them, however, I found they were rotting in the middle, and when the rot had reached the outside of the root, the top died. On many which were not dead, I found a small puncture on the side, and on cutting the root open, I found it had been eaten hollow near the top. On pulling up and closely inspecting a large number of them, I found in two or three a small white maggot, about the size of the largest we see in cheese.

In pulling my crop, which though a light one was not an entire failure, I found many of the turnips, which had grown to a good size, were hollow; and many of them were quite defective. All the crops of ruta bagas which I have noticed in this quarter this season were rather light.

Now, Mr. Editor, I wish to know whether it is common for ruta bagas to suffer from this kind of worm; and if so, whether there be any remedy? Or is my disappointment owing to some mistake of mine? That this question may be answered I will state my management and the manner the ground had been previously treated. The soil is a sandy loam. In the spring of 1838 it was covered with a strong sward, which was ploughed in for corn, after being well manured from the barn. In the fall, lime was applied at the rate of eight casks to the acre. In the spring of 1839 it was again manured from the barn and ploughed for mulberry trees. Twenty-five or thirty loads of compost, made of stable manure, loam and lime, to the acre were covered in the furrow with the trees. Before hoeing, a top-dressing of 25 bushels of crushed bone and 25 bushels of leached ashes was applied to the acre. And as I was desirous of getting a large growth, after hoeing I added 25 bushels of poudrette to the acre. In the summer, I sowed common turnips, between the rows. The crop this year showed that the land was in good condition.

In the spring of 1840, the land was ploughed and lay in the furrow till the time of sowing ruta bagas, when it was harrowed, ploughed a second time and then harrowed well. Light furrows were then opened with a horse plough, a dressing of bone manure was put in the furrows and slightly covered with dust, when the seed was sown in the furrows, by means of a drill barrow.

If you, Mr. Editor, or any of your correspondents, can tell me the cause of my failure, and the remedy, (if any,) I shall be highly gratified. I think more light may be elicited by farmers publishing their failures, than by their publishing their success. R. R. P.

Manchester, Ct., Jan. 7, 1841.

[We have seen crops of ruta baga similarly affected. Have conjectured causes. Sometimes the question with us has been, whether the evil were not caused by the use of unfermented manure in the drills; and at other times we have asked whether it were not early sowing. R. R. P. has here shown that the cause must be different from either of these. He is entitled to thanks for "publishing his failures," and we would aid him to a solution of his difficulties were it in our power; but we can only join him in a request that some one will give the needed information. We will simply ask whether he or any one else has ever seen a crop suffer in this way, excepting upon free or light soils and those highly manured. On tenacious and moist lands, and upon sward land we do not recollect ever witnessing *such* failures.

The inquiry relative to Mr. Ingersoll's piggery accompanying the above communication we have not published, because we are led to believe that the communication referred to, once made in these columns, was never worthy of credit (we know not from whom it came,) and because the gentlemen is not now in this vicinity.—ED. N. E. FARMER.

---

* This is an important consideration to the American silk-culturist, since the loss which Europeans sustain from the muscardine alone, is here seen to be more than sufficient to counterbalance the disadvantage of our high-priced labor.

POPULATION STATISTICS.

From the Journal of Commerce.

We annex a comparative view of the Census of the United States at the several enumerations taken by order of the general government from 1790 to 1840. The increase of population since 1830, is at least *four millions*. The present population of the United States is very little short of SEVENTEEN MILLIONS.

States.	1790.	1800.	1810.	1820.	1830.	1840.
Maine,	96,540	151,719	228,705	298,33	399,955	501,796
N. Hampshire,	141,899	183,762	214,360	244,161	269,328	284,481
Vermont,	85,416	154,465	217,713	235,764	280,652	291,848
Massachusetts,	378,717	423,245	412,040	523,287	610,408	737,466
Rhode Island,	69,110	69,122	77,031	83,059	97,199	108,837
Connecticut,	238,141	251,002	262,042	275,202	297,665	310,023
New York,	340,120	586,756	959,949	1,372,812	1,915,608	2,432,835
New Jersey,	184,139	211,949	249,555	277,575	320,823	372,352
Pennsylvania,	434,373	602,365	810,091	1,040,458	1,348,233	§1,669,717
Delaware,	59,098	64,273	72,671	72,749	76,748	78,120
Maryland,	319,728	341,548	380,546	407,350	447,040	467,228
Virginia,	748,308	880,200	974,622	1,065,379	1,211,405	1,231,444
North Carolina,	393,751	478,103	555,500	638,829	737,987	753,110
South Carolina,	249,073	345,591	415,115	502,741	581,185	594,439
Georgia,	62,548	162,101	252,433	340,987	516,823	*619,164
Alabama,			20,845	127,901	309,527	†479,449
Mississippi,		8,850	40,352	75,448	136,621	376,099
Louisiana,			76,556	153,407	215,739	‡249,638
Tennessee,	35,791	105,602	261,727	422,813	681,904	(a) 823,067
Kentucky,	73,077	220,955	406,511	564,317	687,917	
Ohio,		45,365	230,760	581,434	937,903	1,515,695
Indiana,		4,875	24,520	147,178	343,031	683,314
Illinois,			12,282	55,211	157,455	423,933
Missouri,			20,845	66,586	140,445	(c) 327,734
Michigan,			4,762	8,896	31,639	211,705
Arkansas,				14,273	30,388	94,912
Dis. Columbia,		14,093	24,023	33,039	39,834	43,712
Fl. Territory,					34,730	
Wisconsin Ter.						30,692
Iowa Territory,						43,035
Total,	3,929,827	5,305,925	7,239,814	9,638,131	12,866,920	15,755,843

White population.

	In 1840.	In 1830.	*Increase.*
Maine,	500,443	398,260	102,183
N. Hampshire,	383,951	268,721	15,230
Vermont,	291,130	279,776	11,354
Massachusetts,	728,932	603,359	125,573
R. Island,	105,593	93,621	11,972
Connecticut,	301,858	289,603	12,255
New York,	2,382,571	1,874,287	508,384
New Jersey,	350,724	300,266	50,458
Pennsylv'ia,	1,619,115	1,309,990	309,215
Delaware,	58,581	57,601	981
Maryland,	315,571	291,108	24,463
Virginia,	735,812	694,300	41,512
N. Carolina,	484,172	472,843	11,329
S. Carolina,	259,002	257,863	1,139
Georgia,	363,303	296,806	66,497
Alabama,	288,947	190,406	98,541
Mississippi,	178,967	70,443	108,524
Louisiana,	112,149	89,441	22,708
Tennessee,	629,492	535,746	93,746
Kentucky,			
Ohio,	1,498,593	926,311	572,282
Indiana,	676,296	339,399	336,897
Illinois,	423,330	155,061	268,269
Missouri,	277,357	114,795	162,562
Michigan,	211,001	31,346	179,655
Arkansas,	75,512	25,671	49,841
Dist. Columbia,	30,657	27,563	3,094
Fl. Territory,			
Wisconsin Ter.	30,506		30,506
Iowa Ter.	42,864		42,864
	13,256,429	9,994,396	3,262,033
	9,994,396		
Increase,	3,262,033		

Free colored persons.

States.	1840.	1830.	Inc.	Dec.
Maine,	1,353	1,171	182	
N. Hampshire,	529	602		73
Vermont,	718	881		163
Massachusetts,	8,534	7,045	1,489	
Rhode Island,	3,239	3,564		325
Connecticut,	8,111	8,047	64	
New York,	50,261	44,869	5,392	
New Jersey,	20,970	18,303	2,667	
Pennsylvania,	50,571	37,930	12,641	
Delaware,	16,926	15,855	1,071	
Maryland,	61,938	52,938	9,000	
Virginia,	48,425	47,348	1,077	
N. Carolina,	22,752	19,543	3,209	
S. Carolina,	8,279	7,921	358	

§ Bradford county and parts of Union and Luzerne not included.

* Nine counties not received.

† Incomplete.

‡ Returns from the Western district not received.

(a.) Part of Monroe county not received.

(c.) Seven counties not returned according to law, and not included in this aggregate. It is supposed they have a population of about 50,000.

States.	1840.	1830.	Inc.	Dec.
Georgia,	2,353	2,486		133
Alabama,	1,838	1,572	266	
Mississippi,	1,367	519	848	
Louisiana,	22,197	16,710	5,487	
Tennessee,	5,407	4,555	852	
Kentucky,				
Ohio,	17,102	9,567	7,535	
Indiana,	7,018	3,629	3,389	
Illinois,	420	1,637		1217
Missouri,	1,433	569	864	
Michigan,	703	261	442	
Arkansas,	1 431	141	290	
Dist. Columbia,	8,361	6,152	2,209	
Fl. Territory,				
Wisconsin Ter.	178		178	
Iowa Ter.	153		153	
	371,767	313,815	59.663	1911
	313,815		1,911	
Increase of free col'd.	57,752		57,752	

Slaves.

	In 1840.	In 1830.	Increase.	Decrease.
Maine,	0	0		
N. Hampshire,	1	0	1	
Vermont,	0	0		
Massachusetts,	0	0		
Rhode Island,	5	17		12
Connecticut, (b)	54	25	29	
New York,	3	75		72
New Jersey,	658	2,254		1,596
Pennsylvania,	31	403		372
Delaware,	2 613	3,292		679
Maryland,	89,719	102,294		12,575
Virginia,	447,207	469,757		22,550
N. Carolina,	246,186	245,601	585	
S. Carolina,	327,158	315,401	11,757	
Georgia,	253,508	217,581	35,927	
Alabama,	188,664	117,549	71,115	
Mississippi,	196,765	65,659	130,106	
Louisiana,	115,292	109,588	5,704	
Tennessee,	188,168	141,603	46,565	
Kentucky,				
Ohio,	0	0		
Indiana,	0	0		
Illinois,	184	747		563
Missouri,	48,941	25,081	23,860	
Michigan,	1	32		31
Arkansas,	18,969	4,576	14,393	
Dis. Columbia,	4,694	6,119		1,425
Fl. Territory,				
Wis. Territory,	8		8	
Iowa Territory,	18		18	
	2,127,847	1,827,654	340.068	39,875
	1,827,654		39,875	
Increase of slaves	300,193		300,193	

(b) This apparent increase results from counting as slaves the 43 Africans of the Amistad. Deducting these, the present number of slaves in Connecticut is eleven; being a decrease of 14 since 1830.

Recapitulation.

	1840.	1830.	Increase.
White population,	13,256,429	9,994,396	3,262,033
Free colored,	371,567	313,815	57,752
Slaves,	2,127,847	1,827,654	300,193
Total,	15,755,843	12,135,865	3,619,978
	12,135,865		
Gain thus far,	3,629,988		

Estimate of population not included in the above tables.

Kentucky,	825,000
Florida,	50.000
Deficient counties in Louisinna,	85,000
Do. in Missouri,	50,000
Do. in Georgia,	50,000
Do. in Tennessee,	5,000
Do. in Alabama,	50,000
Do. in Pennsylvania,	30,000
	1,145,000
Add as above,	15,755,843
Total population of U. States, (about)	16,900,843

Of whom about 2,350,000 are slaves, and about 385,000 free persons of color.

Progress of the white population.

Year.	Number.	Increase.
1790.	3,172,619	
1800.	4,307,196	1.134,577 or 35.8 per cent.
1810.	5,862,004	1,554,808 " 36.1 "
1820.	7,866,695	2,004,691 " 34.2 "
1830.	10,541,294	2,674,599 " 34.0 "
1840.	14,165,843	3,624,549 " 34.2 "

Progress of free colored population.

Year.	Number.	Increase.
1790.	59,512	
1800.	104,880	45,368 or 76.2 per cent.
1810.	186,446	81,566 " 76.8 "
1820.	233,400	37,064 " 19.8 "
1830.	319,576	96,066 " 41.2 "
1840.	about 385,000	65,424 " 20.4 "

Progress of the slave population.

Year.	Number.	Increase.
1790.	697,696	
1800.	896,849	199,153 or 28.7 per cent.
1810.	1,191.364	294,515 " 32.1 "
1820.	1,538 036	346,672 " 29.1 "
1830.	2,009,050	471,014 " 30.6 "
1840.	abt. 2,350,000	340,950 " 16.7 "

Progress of the whole colored population.

Year.	Number.	Increase.
1790.	757,208	
1800.	1,001,729	244,521 or 32.3 per cent.
1810.	1,377,810	375,081 " 37.4 "
1820.	1,771,436	393,626 " 28.5 "
1830.	2,328,626	557,190 " 31.5 "
1840.	2,735,000	406,374 " 17.0 "

Progress of the whole population.

Year.	Number.	Increase.
1790.	3,929,827	
1800.	5,305,925	1,376,098 or 35.1 per cent.
1810.	7,239,814	1,933,889 " 36.3 "
1820.	9,638,131	2,398,317 " 33.1 "
1830.	12,866,920	3,228,789 " 33.5 "
1840.	abt. 16,900,843	4,033,923 " 31.4 "

By an examination of these tables it will be seen that the white population has increased in a very uniform ratio from 1790 to the present time; the increase in no decade being less than 34 per cent. nor more than 36.1 per cent. The ratio of increase among the free colored people has been very fluctuating; but taking the colored population *en masse*, slaves and free, the fluctuation has been moderate down to 1830, and the average ratio of increase nearly as great as among the whites. But for some reason or other, (perhaps the abolitionists can explain it,) the ratio of increase for the last ten years, has been greatly reduced, among both free negroes and slaves. A few have gone to Texas and Canada, perhaps 30,000 in all, but this affords a very imperfect explanation of the phenomenon.

CAUSES OF BAD CURRENCY.

From the Journal of Commerce.

* * * * * * *

It will turn out when the truth is known, that more money has been lost by banks within the last ten years, than the whole country would have sold for when our fathers fought the battles of independence; yet the fault is not in the banks, nor their directors. The wide spread ruin shows that the evil is not local nor particular, but universal. It is in the *system*. We have waged a great battle with the laws of trade, and we have been severely flogged for our folly.

All that is necessary is, that we should be convinced of our folly and leave currency to itself. It is the easiest thing to manage in all the departments of business. If congress will but make a bankrupt law, which shall compel all banks and all men to pay their debts or divide their effects, and then if congress and the state legislatures will just let the whole matter alone, there will grow up of itself the best currency in the world. What we want is, to get rid of a *system* and of regulation, so that every man shall act for himself and act freely. Then, whatever is wanted will be provided. If we want paper money accredited in all parts of the country, we shall have it. Then, if a banker fails, he will fall out of the ranks. Our suspensions grow out of the fact that our currency is managed by a great system. If one important wheel breaks, the whole system stops. Let currency become an individual matter, like other branches of business, and *suspensions would be impossible*. When we become wise enough to leave currency to take care of itself, after congress has discharged its constitutional duty of coining money and fixing the value thereof, then we shall have the safest and steadiest and every way the best currency, which the imperfect state of this world will admit.

From the Journal of the English Agricultural Society.

AN ESSAY

On making compost heaps from liquids and other substances; written on the evidence of many years' experience. To which the prize of ten sovereigns was awarded. By James Dixon, Esq., Secretary to the Manchester Agricultural Society.

The force and power of an agriculturist to produce good crops mainly depend on the manures he can command; and how to derive the greatest possible benefits from his immediate resources is one of the most useful subjects that can engage his attention. The English Agricultural Society having offered a premium for the best mode of making compost heaps, I venture to forward the committee my ideas on this most important branch of rural management; and in doing this I shall state the course I have pursued in this particular for many years, and in which every additional experience inclines me not to make any systematic alteration.

My farm is a strong, retentive soil, on a substratum of ferruginous clay; and being many times disappointed in what I considered reasonable anticipations of good crops, I determined on a new system of manuring. Though quite satisfied of the expense which would necessarily be incurred by my plan, I still determined on its adoption. At the onset I effectually drained a considerable part of my farm. My next object was how to improve its texture at the least cost—(perhaps I may be allowed to state that my holding has always been at rack-rent); for this purpose we carted great quantities of fine sawdust and peat earth or bog; we had so far to go for the latter that two horses would fetch little more than three tons in one day—one horse would fetch three cart-loads of sawdust in the same time. Having brought great quantities of both peat and sawdust into my farm yard, I laid out for the bottom of a compost heap a space of considerable dimensions, and about three feet in depth: three fourths of this bottom was peat, the rest sawdust; on this we conveyed daily the dung from the cattle sheds, the urine also is conducted through channels to wells for its reception,—one on each side of the compost heap;—common water is entirely prevented from mixing with it. Every second day the urine so collected is thrown over the whole mass with a scoop, and at the same time we regulate the accumulated dung. This being continued for a week, another layer, nine inches or a foot thick, of peat and sawdust (and frequently peat without sawdust) is wheeled on the accumulated heap. These matters are continuously added to each other during winter, and in addition once in every week never less than 25 cwt., more frequently 50 cwt., of night-soil and urine; the latter are always laid next above the peat or bog earth, as we think it accelerates their decomposition. It is perhaps proper here to state that the peat is dug and exposed to the alternations of the weather for several months before it is brought to the heap for admixture; by this it loses much of its moisture. In some cases, peat contains acid or astringent matters, which are injurious to useful vegetation. On this I have not tried any decided experiment, but am led to the supposition by fre-

quently seeing stones some in a partial state, of decomposition, others wholly decomposed in bogs, and at the depth of several feet from the surface. Some years' experience has convinced me of the impropriety of using recently dug peat; proceeding in the manner I recommend, it is superior and more convenient on every account—very much lighter to cart to the farm-yard or any other situation where it is wanted; and so convinced am I of its utility in composts for every description of soil, except that of its own character, that wherever it can be laid down on a farm at less than 4s. per ton, I should recommend every agriculturist and horticulturist that can command it, even at the cost here stated, to give it a fair trial. So retentive and attractive of moisture is peat, that if liberally applied to any arid, sandy soil, that soil does not burn in a dry season; and it so much improves the texture and increases the produce of an obdurate clay soil, if in other respects rightly cultivated, that actual experience alone can fairly determine its value.

For the conveyance of night-soil and urine, we have the largest and strongest casks, such as oils are imported in; the top of which is provided with a funnel to put the matters through, and the casks are fixed on wheels like those of a common dungcart. For the convenience of emptying this carriage, the compost heaps are always lower at one end; the highest is where we discharge the contents, in order that they may in some degree spread themselves over the whole accumulation; the situation on which the wheels of these carriages stand while being discharged is raised considerably; this we find convenient, as the compost heap may be sloped six or seven feet high: low compost heaps, in my opinion, should be avoided. The plan here recommended I have carried on for some time. I find no difficulty in manuring my farm over once in two years; by this repetition I keep up the fertility of my land, and it never requires more than a moderate application of manure.

I am fully aware that there are many localities where neither peat nor night-soil can be readily obtained; but it is worth a farmer's while to go even more than twenty miles for the latter substance, provided he can have it without deterioration: the original cost is often trifling. On a farm where turnips or mangold are cultivated to some extent, the system here recommended will be almost incalculably advantageous; a single horse is sufficient for one carriage—mine hold upwards of a ton each; six tons of this manure in compost with peat, or, if that is not convenient, any other matters, such as ditch scourings, or high headlands which have been properly prepared and laid dry in a heap for some time, would be amply sufficient for an acre of turnips or mangold. This manure is by far the most invigorating of any I have ever yet tried; bones in any state will bear no comparison with it for any crop; but it must be remembered that I went on the supposition that it has not been reduced in strength before it is fetched.

Convenience frequently suggests that compost heaps should be raised on different parts of a farm; but, unless in particular instances, it is well to have them in the yard: in the farm-yard, all the urine from the cattle stalls may be employed with the greatest economy; and be it remarked that the urine from animals, in given weights, is more powerful than their solid excrements.* How important then must it be to the farmer to make the most extensive and the most careful use of this liquid. It is sometimes carted on the land, but that practice will not bear a comparison with making it into composts in the manner here recommended. Great waste is often made in putrescent manures after they are carted on the land; instead of being immediately covered or incorporated with the soil, we not unfrequently see them exposed for days together in the hot rays of a scorching sun, or to the injurious influences of a dry wind. I have before stated that compost heaps should on many considerations be raised in the farm-yard; still circumstances are frequently such that it is more proper to make them at some distance in the field. If a headland becomes too high by frequent ploughings or workings of the land, in that case it should be ploughed at the time when clover or mixed grass seeds are sown with a white crop, for instance, barley or oats, and clover for the year following: a headland might then be ploughed, and a number of cart-loads of some manure heaped from one end to the other. Immediately after this it should be trenched with the spade (or what is sometimes called digging,) and ridged high, in order that an action should take place between the soil and manure; by this means the mass would soon be in a condition for turning over, and any ditch scourings, or other matters which had not in the first instance been used, might now be added to the mixture. The heap should then be allowed to remain closed for a few weeks, then turned over again; at this turning, in all probability, the mass would be much reduced; if sufficiently reduced, raise the ridge of compost well on both sides, but, instead of its top being pointed, make a trench or cavity on the top from one end of the heap to the other. This cavity should be made tolerably retentive of moisture, which may be effected by treading with the feet; carriages of night soil, or urine from the cattle stalls, may then be emptied into the trench, and the bulk of the heap would determine how many were required; this being done, a little earth should be thrown into the trench, and the heap allowed to remain in that state until the middle or latter end of autumn; it will then be ready for another turning; but at this time care must be taken to have the heap well made up at the sides and pointed at the top; in this situation rain will be thrown off, and the compost preserved dry until winter presents some favorable opportunity for laying it on the young clover, wheat, or for making any other use of it which may be required.

The beneficial effects of top-dressing young clovers or mixed grass seeds is scarcely ever regarded with due attention. By this help crops are not only much increased, even 30 or 50 per cent., but they are also ready for cutting much sooner, which in a backward spring gives the stock farmer inestimable advantages for sorting his cattle, and thereby raising manure at his pleasure. The full effects of this practice I first experienced in the dry season of 1826: I had some clovers which had been manured the previous winter; my land

* This must be taken with some limitations, for urine contains 90 to 95 per cent. of water; and unmixed dung contains all the salts of urine, besides much mucus and other substances.—W. L. Rham.

was soon covered with crop, and that so vigorous a one, that the hot weather did not overpower it. My cows that summer were tied up during the day-time, and in the night they were turned out into the pastures; most of the stock in my district were much distressed from over-heat as well as from being short of food for some weeks; milk yielded little butter, scarcely any for a time was offered in our large market town:—no doubt that year will be remembered by many gentlemen on the Agricultural Society's committee. I, however, was under no difficulties on account of the season: my clovers produced plenty of food for my cattle, and in return they yielded as much milk and butter as I ever recollect from the same number. I am persuaded that the same satisfactory results would have followed if the same system had been adopted for feeding stock; it was that year my attention was first directed to raising compost heaps from urine. This I now do frequently without the help of any dung from the cattle-stalls; the same occasion called my mind to another matter well worthy every farmer's attention—I allude to the great superiority of the manure raised in summer soiling to that produced in the stalls during winter. I verily believe the difference is fifty per cent., unless stock are fed in a great measure during winter with artificial food. In an arrangement for making compost heaps from urine, I would recommend a receptacle to be made at the back of the cattle stalls just outside the building; this should hold about 20 cart-loads of mould, or any other matters to be employed; if its situation were a little lower than the cattle-sheds all the urine would pass into it, and remain there until the mass is completely saturated, which will be sufficient; when the earthy matters are covered over with it, the compost may then be thrown out and the proceeding again renewed. In order to show part of the benefits of this practice, I beg here to observe that the most foul or weedy mould may be used; the action of the urine, if not reduced by water is so powerful, that wire-worms, the black slug, many other destroying insects, and all vegetables, weeds, &c., when in contact with the urine for a time are deprived of their living functions. The situation for raising this compost should be protected from the weather by a covering similar to a cart-shed, indeed, the deteriorating influences of rain, sun, and arid winds, on all putrescent matters or compost are so serious, that in my humble judgment it would be worth while to have places under cover where these are usually laid down.

I beg to conclude this essay with some observations made on a former occasion. No amelioration connected with the rural art is of more lasting importance than correcting the constitutional defects of a soil. The best horticulturists and market-gardeners are many of them perhaps, unacquainted with the theory, yet perfectly understand the great results from that practice; and in this particular information they are all of them superior to many practical farmers. How often do we see a stiff soil sterile in a great degree from that cause only; yet, in the vicinity of a sandpit and adjoining most bogs there is a considerable breadth of coherent land, which might be made double its present value by judicious and liberal top-dressings of peat, which is also unproductive from causes of a contrary nature. The present poverty of many extensive tracts of land is a manifest exhibition of the want of skill or enterprise of their owners and cultivators.

PROPOSED IMPORTATION OF SHEEP AND HOGS, AND REMARKS.

For the Farmers' Register.

To Virginia Farmers.—Whereas, I desire to obtain a few more blood sheep and hogs, and being satisfied that they can be obtained in England at better rates, and of better quality than at the north, I propose for this purpose, going to England in August next; provided other farmers will contribute so as to justify the expedition. Three or four thousand dollars would be sufficient, and perhaps a few spirited men would make up the sum. I am not particularly desirous of going myself; consequently if a better judge of stock, who may be interested in the adventure, and can give satisfactory references, will offer his service, then I thankfully withdraw my name as agent.

Let the compensation be fixed at $50 the month and expenses paid, and let the bills of sale be the price at which each shall receive his portion; no *one* to choose for himself, but all by lot. And let it be understood that only Cotswold and Lincolshire sheep, and Berkshire hogs, are to be imported.

One cannot afford to go for a couple of sheep or a pair of pigs; consequently he sends, and generally gets what others refuse, and sometimes what nobody should have. Again—when we take pigs from the north at a few weeks old, they are put on food which perhaps they never before tasted, and consequently, the loss of milk, the new food, and transportation, make them runts; or if we buy thence grown stock, we always pay high grade prices, and generally get low grade animals. A sheep should not be moved a distance unless more than one year old; and for the sake of economy, perhaps imported hogs should be sows young with pig, and young boars.

In the November Cultivator we have a profile of a Cotswold buck, lately imported, which at eighteen months old, measured five feet two inches in length, and computed to weigh in net meat 180 pounds. In a previous Cultivator, we also see the profile of Mr. Clift's Lincolnshire buck, Nonesuch, measuring four feet seven and a half inches in length, but computed weight not given; we may know, however, that the Lincolnshires are very valuable, as Mr. Clift sells his bucks at $50 to $100, his ewes at about one-third less, and his wethers from $20 to $30. I have one of the sons of Nonesuch, now rising two years old, which bids fair to make a match for his sire, also many other fine sheep, yet am not satisfied, nor shall I be, until my flock may reach a weight of 100 to 180 pounds, and 6 to 12 pounds of wool.

In the December Cultivator, we read that Wm. P. Curd, Esq., of Kentucky, purchased 17 sows and 6 boars of the Berkshire and Irish grazier breeds; that in two years he had from them sold 110 pair of pigs at $40 the pair, $4,400; that 254 sows had been to his boars, (some from the distance of 200 miles,) at $10 each, $2,540; that he had taken in premiums 31 silver cups, making a total of $7,000. But this is not all—for we also

read that he sold pork, to what amount is not stated; but let us suppose that the 17 sows in the two years produced 510 pigs, from which take 220 pigs sold, and we have 290 remaining for porkers; which, if weighing only 250 pounds each, gives 72,500 pounds of pork, which to a Virginian, would be worth $4,350, and which added to $7,000, gives a grand total of $11,350. But let us suppose that none of the proginy were sold as pigs, but all made into pork, then we have 127,500 pounds, worth $7,650, or $3,825 the year, from 17 sows and say one boar.

Again, in the Complete Farmer, we read, that a pig at eight months old was driven to Danesburg and slaughtered, and weighed 311 pounds, and that many of the same age were nearly of the same weight. Now, whereas my hogs at eight months old, at best, would not weigh more than 150 pounds net, and although this weight would justify my slaughtering both fall and spring, yet I cannot, should not be satisfied. Are not the above exhibits enough to open the eyes and purses of the Virginia farmer? Are they not enough to convince him that it requires spirited men to do business?

As to the old breed of hogs, the case is nearly over with them; for although some are yet crying out, "I want the woods' hog," yet no one in his proper senses will much longer hold on to them. It is true, that some persons who have purchased, or thought they had purchased blooded hogs, have been disappointed by other means than those above enumerated; for they had been in the custom of giving their hogs daily about three grains of corn each, and supposed that by obtaining blood, they could get rid of a portion of this burthen; but as the scrub at a year old weighed as much as 60 pounds, and the blooded hog at the same age only 80 or 90 pounds, they considered themselves terribly humbugged.

As I do not profess to be a judge of horse or cow, I propose to import neither, nor do I care for them.

Persons desirous of contributing to the above purpose, are requested to give their names and amount either in the Farmers' Register, the Richmond Whig, the Lynchburg Republican, or the Lynchburg Virginian. And any person proposing to go to England, will give name and references through one of the same mediums.

The money will be wanting the last of July, and can be deposited either in Richmond, Petersburg, or Lynchburg, and the delivery of stock can be at Norfolk, Petersburg, Richmond, Columbia, Scottsville, New Market, and Lynchburg—but of this, more in time.

References.—Messrs. Cocke, Brown, Cabell, Dorman, Toler, and Kyle of the Virginia legislature; S. S. Baxter, (Attorney General,) Joseph Allen, (C. C. Appeals,) and Capt. John Goddin, city of Richmond; John Garth and James Fariss, Esqrs., and Rev. John N. Johnston, of Buchanan; Sundry persons of Lexington, Lynchburg, New Glasgow, Duiguidsville, New Market, Lovingston, Charlottesville and Scottsville.

Editors of newspapers are requested to insert the above at least once, and charge to charity.

ZA. DRUMMOND.

Amherst, Jan. 20th, 1841.

There is another good reason for carrying into effect such a scheme as is proposed by Mr. Drummond, besides all that he has urged. Each of the best known breeders and salesmen of Berkshire pigs and other highly prized live-stock, has probably produced his sale animals from a single pair, or at any rate, from too small an original number, and by continuing to breed in-and-in, for successive generations. This course will certainly and greatly deteriorate any family of animals; in whatever cases it has been pursued, the original purity of blood (supposing it to have been the best at first,) is no guaranty against the purchaser being supplied from a feeble and worthless progeny. Against this very common and general source of bad stock, at the highest prices, the distant purchaser has no safeguard, but in the moderation and integrity of the stock-breeder and salesman. We ought to obtain new breeders, and enough in number to avoid breeding in-and-in; and this may be done by enough individuals, either separately or in partnership, uniting in the importation.—ED. F. R.

MANURING WITH PURCHASED MARL AND LIME.

For the Farmers' Register.

Essex, Va., Jan. 26th, 1841.

I have received all the back volumes of the Farmer's Register and had them bound, and look to them as a never-failing source of interest and improvement. I have been for the last two years using marl and shell and stone-lime to a very considerable extent for my means, and am pleased to say, that thus far, my expectations have been fully realized. The marl, of very superior quality, is brought from Urbanna, in Middlesex, and purchased by me at my landing for from 4 to 6 cents per bushel. Shells can *sometimes* be bought at from 90 to 100 cents per hogshead; and I buy all I can get at that rate; and by burning them with pocoson wood, cut by my hands in the winter season, when they would otherwise have nothing to do, I do not estimate the actual cost of the shell-lime to exceed 7 cents per bushel. The stone-lime I buy either in tierces or loose in the hold of the vessel; for the former (Thomaston,) I have paid $1,25 a tierce, and for the latter, purchased at the kiln of E. J. Cooper, near Baltimore, I pay 12½ cents per bushel. It is a very expensive method of improvement, but I still hope the investment will prove profitable.

Yours, very respectfully,

RICHARD BAYLOR.

CABBAGES WORMS.

From the Albany Cultivator.

A writer in the Southern Cultivator, says he "had a square of very fine cabbages in his garden upon which the worms had commenced making

great ravages. Pennyroyal was gathered and scattered over the cabbage-heads plentifully, and the work of destruction ceased." The writer did not know whether the discovery was a new one, but it seems to have been a very easy and effectual one, and well worth a trial.

EFFECTS OF THE STOCK ON GRAFTED FRUIT.

From the New Genesee Farmer.

A late number of the Yankee Farmer, contains some remarks of the editor, relative to the influence of the stock on grafted fruit, copied from a former volume, in which he lays down the following propositions:

1. "Stocks have an effect as to bearing years.
2. Stocks affect the scion in hastening or retarding the ripening of fruit.
3. Stocks produce defects on grafted fruit.
4. Stocks affect the color of fruit.
5. Stocks affect the quality of fruit.
6. Stocks have an influence in increasing or decreasing the size of fruit."

This subject is not new to horticulturists. An elaborate article by Dr. Mease of Philadelphia, affirming such influence was reviewed by us several years ago, in the 3rd volume of the Genesee Farmer; but we did not think at the time that the evidence was conclusive: and we have seen nothing since to induce us to change that opinion. Still, we are willing to examine the subject anew with fairness and candor.

We should have been gratified if the editor had given in detail, the facts on which he founds those opinions; but as he has only done so in part, we would respectfully suggest that if these propositions are true, it would not be difficult to prove them by experiments faithfully recorded, from the commencement to the termination, and before witnesses of unexceptionable character. Statements of this kind would have a weight that solitary or imperfect recollections can never produce; and more especially where the observations are hastily taken, without a thorough examination of all the circumstances connected with the subject.

But we cannot properly omit on this occasion the statement made by Professor Lindley, that "no such influence can be exercised." He adds: "Those who fancy that the quince, for instance, communicates some of its austerity to the pear, can scarcely have considered the question physiologically, or they would have seen that the whole of the food communicated from the alburnum of the quince to that of the pear is in nearly the same state as when it entered the roots of the former. Whatever elaboration it undergoes, must necessarily take place in the foilage of the pear; where, far from the influence of the quince, secretions natural to the variety go on with no more interruption than if the quince formed no part of the system of the individual."

This decision is emphatic; and so far as we can perceive, the reasoning is as clear and conclusive as can be expected from theoretical considerations alone. If there are facts, however, that come in conflict, their weight must be allowed, and the theory should then be revised and amended.

Bearing in alternate years is a habit chiefly observable among apple trees; for when the pear, the peach, the plum, and the quince fail to be regular bearers in this quarter, the deficiency is to be ascribed to unfavorable seasons, or the depredations of insects. The case is otherwise, however, with some varieties of the apple; and we have supposed the habit was owing to the trees becoming, through exhaustion, unable to produce blossom buds for the next season. In this, indeed, we may be mistaken; but of two things we are confident; moderate bearers are commonly annual bearers; and those that we find unproductive, have generally borne profusely in the preceding season. As examples, we would name Vedder's pippins, and the sweet bough, or harvest apple. The former is an alternate bearer, but the latter bears every year; and as we have half a dozen trees set on as many different seedlings, among which we have observed no variation in point of regularity, earliness or productiveness—we feel at liberty to infer that these stocks have had no influence on the grafts.

But alternate bearers conform to circumstances in commencing their biennial course. We had six trees of a russet apple, all of thesame variety, half of which bore abundantly at one time, and the other half in the following year. Now if alternate bearing is caused by excess in one season, and we prevent that excess by destroying a portion of the blossoms, we shall certainly prevent alternate bearing. How then can a stock subject to such conformity induce a graft to alter its time of bearing? It appears to us it cannot be.

There are some things in regard to the ripening of the same variety on different stocks, however, that we are not prepared to explain. For instance, we have three trees of the transparent guigne cherry, one of which ripens a week or ten days before the others. The late trees stand near together—the other at the distance of sixty feet. The subsoil in that part of the fruit garden is very variable—small beds of sand in some places, and clay and stones in others; but we know not what the subsoil is under those trees. Neither do we know whether the stocks are all suckers of the morello* or a part of the Kentish* cherry. We may ascertain this next season. In the meantime, we are quite as much disposed to ascribe the difference in the time of ripening, to the subsoil, as we are to the stocks.

It is well known, however, that stocks have an influence on the ripening of wood, and tender sorts become hardier when grafted on hardy stocks—not because the latter exerts any specific influence on the former, but because the usual supplies of sap are withheld earlier in the season, and the wood has more time to mature. The same effect is produced when tender shrubs are planted in dry, sterile, rocky situations.

In examining appearances out of the usual order of things, great care is necessary to prevent us from drawing wrong inferences. When different trees derived from the same parent variety, differ in their fruit, perhaps the first idea that occurs is a difference between the stocks, and the matter is settled too often, we apprehend, without further examination. But let us not deceive ourselves.

* These two sorts as stocks, are well adapted to test this question.

If the stock affects grafted fruit, its action must be regular every year alike; for having neither leaves or branches, it is less subject to vicissitude than any other part of the tree; and therefore no variation in the flavor, shape, or color of the fruit, can be justly ascribed to the stock, except it be regular and every year alike. If it is not so, we must search for some other cause; and even if it is so, there may be another cause. Several years ago, we had the Washington plum, of a light but splendid red. The tree, however, never produced fruit of that color, either before or since. The cause, therefore, could not be in the stocks.

Again—we have three trees of the September pear (summer bon cretien?) growing on pear stocks; and several branches of this fine variety on a Spitzenburgh apple tree. About nine years ago, the latter bore pears that were *redder*, and *sourer*, and *more astringent*, than the fruit from the other trees; and we fancied that the Spitzenburgh had imparted some of its qualities. The cause appeared very plain. Could it be in any thing but the stock? Yes—they never bore such fruit before or since; and the pears are as *yellow*, and as *sweet*, and as *pleasant*, as any that are produced by the other trees. The stock, therefore, could have had no agency in this matter.

We have two trees of the summer bell pear. For several years past, one has borne large fair fruit, changing from green to yellow as it ripens, while the other tree has produced reddish pears, but so knotty, astringent, and unpalatable, that we have consigned them to the hogs; and year after year there was no improvement. Well, what stronger proof can be wanted that the stock affected the graft?—Not too fast. That tree has begun to bear better fruit; and we have no doubt of its final recovery, though the disease we can neither name or describe.

The large white currant is a delicious fruit; and we have had some dozen or fifteen bushes planted in a row, all from the same parent-variety, but about one half of them bear fruit very superior to the others—much sweeter and more juicy or melting; and every visiter who has tasted them concurs in this opinion. And they are regularly so, every year like. Well, is not this a clear proof of the effects of the stock on the graft?—No—they have no stocks—they stand on their own roots.

PEAT MEADOWS.

From the Rev. H. Colman's Address at Norwich.

There are large tracts of a peculiar soil eminently adapted to improvement in itself, and to the enriching and improvement of other soils, the value of which has scarcely begun to be appreciated. I refer especially to our peat swamps. These are deep deposites of vegetable matter, the accumulation of ages, which, in many cases at an expense which one year's cropping will compensate, may be made in the highest degree productive in grass, potatoes, carrots, and Swedish turnips, and in some cases, as experiment has proved, in corn, rye and wheat. Three tons of English hay per acre are not an unusual crop to be obtained from these lands, and by proper management their productiveness seems almost inexhaustible. I will set aside altogether their value as fuel, though in this respect, within twenty-five miles of a large city, they must be considered at current prices of fuel, as of very great worth per acre. After two spits of fuel have been taken the land is still of considerable value to the owner; and if the top-paring, which is unsuitable for fuel, be thrown back, it will in two years afford him a liberal cutting of good fodder for his stock.* But besides all this, the importance of these grounds, as furnishing abundant resources for his compost heap, and enabling him to enrich his higher and perhaps exhausted grounds, is incalculable. Now the amount of this soil in New England is probably much beyond what most persons would suppose. The island of Nantucket, for example, is calculated to contain 985 acres of peat swamp, from one to fourteen feet in depth, which is almost a tenth of its whole territory; and excluding the four western counties of Massachusetts, which abound less in this kind of soil than its eastern portion, it is calculated that there are at least 80,000 acres or 125 square miles of an average depth of six feet four inches, within this single state. Whether, then, we consider the value of this soil in itself for cultivation, or as furnishing the ready means of restoring that which has been exhausted, we cannot but acknowledge the advantages which it promises to our agriculture.

MEANS OF ENRICHING SOIL.

The next inquiry which suggests itself is, whether we have the means of enriching our soils and of rendering them as productive as they may be made. We have first, then, the usual supply of animal manure; and as we are not exporters but are importers of agricultural produce to a considerable extent, this being consumed among us, performs its part in restoring what has been taken from the soil, and in further increasing its productiveness.

Further, in extraneous manures we are by no means deficient. I have already spoken of our peat swamps, and of the vast deposites of this vegetable matter, which are scattered over our territory. Several parts of our territory abound in limestone and in calcareous marls, which it is hoped will prove ultimately of great value. Our sea coasts present an inexhaustible supply of seaweeds and fish, and of marsh and dock mud and muscle bed. Of ashes in various forms we have the usual supplies. Many of our various manufactories furnish directly valuable manures or materials for manure. This may be said, in particular, of our woollen manufactories; comb and brush manufactories; sugar refineries; extensive tanneries; soap factories; oil and candle establishments; glue factories; and slaughter houses. Our large cities and villages furnish the usual resources for manures to the neighboring towns. Many of our lands, likewise, are sensitive to the

---

* The editor questions whether this be true as a general remark. The meadow must be remarkably dry in which the land will be worth much for many years after taking out peat two spittings deep.—Ed. N. E. Farmer.

almost miraculous powers of gypsum ; and though New England has within itself no considerable deposite of this valuable mineral, yet it is easily procured, and may be furnished to every part of the commonwealth at a reasonable expense—an expense in no case, where its efficacy is ascertained, such as to discourage its use.—*Ibid.*

SAVING MANURES.

We have made as yet, small advances in the art of saving and compounding manures. There is little doubt that as much valuable manure is now lost or thrown away, through ignorance or neglect, as is used. The practice of renovating and enriching land by ploughing in green crops, or by inverting the old sward, is seldom practised among us, although where this has been done, the effects have surpassed the most sanguine anticipations. The introduction of bone manure and poudrette, is likewise recent; but from their proved efficacy and the facility of their transportation, they are likely to prove extraordinarily beneficial. In New Jersey, I have witnessed the most remarkable effects of a newly discovered marl, of an alkaline character, and of great efficacy. It has more than doubled the value of lands in the neighborhood of the pits where it is found. The application of one hundred bushels of this marl to land which under common cultivation would produce not more than 20 bushels of corn to the acre, causes it to yield 60 bushels, and wheat and clover in proportional abundance. Nor are its effects transient, but it produces a permanent improvement of the soil, the duration of which is not yet ascertained. In this respect it differs most favorably from ashes and many other manures, whose efficacy is continued seldom more than one or two years. At present this marl is delivered at the pits at seven cents per bushel, and might be delivered at many of the ports of New Jersey at a small advance upon that price. The farmers of Long Island have for years been in the habit of purchasing for their wheat fields our leeched ashes at a cost of ten and twelve cents per bushel. If these shrewd farmers have then found an advantage in coming to our ports after our drawn ashes, why may not we import marl from New Jersey—a substance far more efficacious and more enduring in its effects than ashes, at even a less price than is paid for our ashes ?

In regard then to manures and the means of enriching our lands in New England, there is no deficiency ; but we are greatly wanting throughout the state, in frugality to save the vast amounts which are now wasted; in industry to collect the means around us; and in skill and labor in preparing them for use. In soil, climate, and manufactures there is no impediment in New England to a successful agriculture.—*Ibid.*

SAUSAGE MAKING.

From the Albany Cultivator.

Should you think our mode of making sausages worth a place in your chapter on domestic economy you can place it there.

We prepare our sausage meat in the usual way Then, instead of putting the meat in skins, prepared from the hogs' entrails, we make bags of white clean cotton or linen cloth, as large, say, as a man's arm, larger or smaller as may suit, and of convenient length, say about a foot long, and put the sausage meat in these bags, and hang them up to dry. In this, we save much labor in preparing the skins, and considerable in cooking; we slip off the bag from so much as is needed, and cut the sausage into slices of sufficient thickness for cooking. I much prefer sausages put in bags to those put in skins, as they keep more moist. Others, for the same reason dislike them.

Respectfully yours,

CALVIN BUTLER.

P. S. Ripe elder berries make good pies. Try them, ladies.

C. B.

Plymouth, (Conn.) Sept. 17, 1840.

CULTURE OF THE PEACH TREE.

From the New Genesee Farmer.

It has been mentioned by writers on the culture of the peach tree, that hot water poured around the trunk at the surface of the ground, will destroy the worm. We have not yet tried it, but we intend to do so ; and in the meantime we would suggest to our readers, that it may be done at any time during the winter or spring when there is no snow and the soil is unfrozen. We think the work would be more thoroughly done, however, if the gum be first removed, so that the hot water may enter the habitation of this insect.

Soot has been found excellent for this tree. In one case that has come to our knowledge, its pale leaves were changed into a dark green by this application round its roots ; and though the effect may in part have been caused by the destruction of the worm, it has doubtless acted also as a manure. Those who have stove pipes to clean and peach trees to cultivate, should save the soot for this purpose.

One of the most deplorable conditions that a peach tree can be placed in, is to stand in a meadow or grass ground which is annually mowed. Sometimes we see them in door-yards where the grass grows strong, but where neither pigs, nor sheep nor cattle, are allowed to enter. A half starved tree however, is no ornament in front of a house ; but we will not find fault without proposing a remedy. Cultivate a circle round each tree, of two or three feet in diameter ; and hoe in manure from the stable, the hog pen, the hen roost, the leach rub, or the wood pile, not forgetting the stove pipe, and the tree will soon compensate for the labor by its beauty and productiveness.

PROFITS OF A KENTUCKY FARM.

Frankfort, January, 1841.

To the Editor of the Farmers' Register.

The investment of capital in any branch of productive industry should be guided by authentic, practical facts. Political economists, private capitalists, and, indeed, all orders of men, but especially those belonging to the productive classes, are

interested in those facts which relate to the cost of productions and the exchangeable value of consumptions. Producers and consumers are more immediately concerned in them, as affording useful guides leading to a knowledge of the amount of productions necessary to meet the wants of consumption, and to the establishment of equitable and remunerating rates of valuation. Statistic facts, accurately ascertained, and periodically authenticated and published, serve also to render the interests of both producers and consumers more permanent, and consequently, in the long run, more productive. They indicate the mutual relation and dependence of each upon the others; and thus contribute to remove those causes of fluctuation which influence so unfavorably all branches of industry.

The industrial forces employed in agriculture, and the value of its productions, are less perfectly known than those of any other important producing interest. We have occasional reports of the amount of our exports, embracing agricultural productions to some extent, and these are certainly interesting and useful documents; but we know little of the extent of our entire *productions*. Our statistics of agriculture, therefore, furnish only a knowledge of our *surplus* productions. But what ratio do they bear to the whole amount of production? We can only form conjectural estimates; but certainly the surplus consists of but a small proportion of the entire production. Looking at this fact, and seeing that the action of the federal and state governments has been conducted by the light of statistics relating merely to our exports, I have been often tempted to accuse our legislators with criminal ignorance of, and ingratitude towards the greatest interest of the country. Legislation has begun and operated upon the wrong end of affairs. It commences at the end instead of the beginning; and the position is the most unfortunate, because it cannot look back, for the beginning has been leaped over; nor forward, for the end has been assumed as the starting point of legislative action. It should be directed primarily to *the increase of production;* and this, of course, would increase the amount of surplus for export. If, therefore, our governments, while furnishing the facilities for the transportation and export of our surplus productions, would direct their labors towards the increase of the whole productions, we should have more surplus to export, and the works intended for the convenience of commerce, and acting indirectly in favor of production, would prove far more profitable, and more direct benefits would result to all interests. My notion of the duty of government, then, is, that it should furnish to the producing classes, those means of instruction, fitting them for the more intelligent and successful prosecution of their various pursuits, and the expense and labor of conducting which are too onerous to be borne by individuals or associations of individuals. This scheme would, of course, embrace agricultural schools; for in the present state of our country, we can hardly hope to organize them efficiently without the aid of government. These opinions, I am aware, are not generally subscribed to by our politicians; and what is worse, the farmers themselves do not appear to have generally adopted them; or if they have, they have not acted upon them. Under the peculiar forms of our political institutions, we can scarce expect the action of government to anticipate public sentiment, let it be never so salutary. The government, so far from leading or giving direction to popular sentiment, is driven (off and on) by it. It is the duty of the press, therefore, more particularly the agricultural press, to awaken public sentiment on this subject, and conduct it to right conclusions and effective action. I think, perhaps, the first necessary step in this matter is to take measures to ascertain *accurately* the entire productions and consumptions of the country, which would necessarily also embrace the exports and imports. I can hardly believe the returns of the United States census, recently taken, will be full and satisfactory; and I have strong reasons for doubting the accuracy of even the partial information they will afford. Fulness and accuracy are essential to the utility of statistics.

We have had frequent disputes here as to the productiveness of agricultural capital. We hear it frequently asserted, that in general less than five per cent. is realized; and I presume this opinion is a near indication of the truth. It is certain that he, who in addition to supporting his family from his farm, realizes six per cent., is deemed a thrifty husbandman. But there are many who double, and more than double, this rate of profit. They are, of course, farmers of more than ordinary intelligence and practical ability; and I think the publication of facts, derived from such sources, will serve a useful purpose by stimulating others to improvement.

I have before me a letter from a friend, distinguished alike in the walks of agricultural and political life, detailing some facts which, under the belief they will prove interesting to your readers, I am induced to transcribe. As the writer fears his neighbors may deem him a boaster, I am not authorized to give his name to the public, though I do to you, individually; but I will say upon the responsibility of my own, that no man in the nation bears or deserves a more exalted reputation for integrity. And I will add that, under his course of husbandry, simple as it is, his soil, so far from depreciating, has improved and is improving in fertility; and an acre of his corn-field will measure out as much grain as two acres of his neighbor's field, originally as good soil, but cultivated with less skill and judgment. My correspondent's farm is in a section where land is neither deemed so productive nor valued so highly as in other sections. It is, however, a fine calcareous soil, the substratum of fine clay; the natural timber, oak, sugar tree, walnut, locust, &c. The price at which he values it, too, is high for land in his county, sixty miles from Lexington; and is rarely obtained, unless extraordinary improvements tempt the purchaser. He has offered his farm at the price estimated, but has not met a purchaser. It has not what, in the more highly appreciated sections, would be deemed a due proportion of level arable land, being cut by a meandering creek, giving the hill-sides running down to its margin, to perpetual pasturage instead of the advantage of alternating with tillage.

The profits made on this farm, though highly satisfactory and far better than the general average, are nevertheless exceeded by others in Kentucky. With these observations I subjoin the letter, as follows: Yours, truly,

THO. B. STEVENSON.

——, *December 7th*, 1840.

Dear Sir—Since the conversation we had in relation to the profits upon capital invested in farming, I have reflected upon the subject, and now present you a more accurate estimate of my experience on that subject.

I have, in my farm, 450 acres, of which about 300 are cleared. I estimate the land to be worth, *in cash*, fifty dollars per acre, - - $22,500
5 negro men at $800, - - - - 4,000
3 negro women, (one old,) - - - 1,500
3 boys from two to six years old, - - 1,000
8 work horses and mules, at $70, - - 560
3 carriage and riding horses, at $80, - 240
30 cattle of all ages, at $15, - - - 450
350 Merino sheep, at $3, - - - 1,050
65 young sows, shoats and pigs, at $2, - 130
(A part of my killing hogs for next year, will be from pigs yet to come.) - -
Farming implements—2 wagons and light cart, - - - - - - 250
Ploughs, harrows, &c., including gear for horses, - - - - - - 150
Poultry, &c., (including omissions,) say - 170

Total amount of capital, - - - $32,000

Legal interest on capital, ($32,000,) at 6 per cent. - - - - - $1,920

Of the cleared land I cultivate, say 60 acres in hemp; 60 in corn; 3 in seed hemp; and 7 in pumpkins, beets, potatoes, &c., including garden, total of plough-land in cultivation, 130 acres. After planting corn two years on the same ground, I have been in the practice of sowing it down in rye for feeding off to stock, and permitting it to remain in rye two years; consequently, I have in crop, in addition to the 130 acres, say 60 acres in rye, 25 in meadow and orchard, and every other year about 10 acres of rye for seed, making an average of about 220 acres in crop. The residue of the cleared land, about 80 acres, is in pasture; and all my wood-land is enclosed, and about three-fourths of it well cleaned up and set in blue grass, and I am annually progressing in cleaning up and setting the remainder in grass, so that I have plenty of permanent pasture, including my rye.

My *rotation* of corn and *rye* was adopted when I was engaged in raising mules; but having quitted that business, I intend to make the rotation in future, corn and *clover*, two years each; and as a preparation for clover, to sow down my ground [in wheat] every *second* year, and sow clover on the wheat in February following.

I have, as yet, practised no *rotation* in relation to my hemp ground, but this may be conveniently done, by sowing hemp in a field on which two crops of clover have grown, and converting an equal quantity of hemp land into corn ground; and after two years, sowing it in wheat in the fall, and clover in February, and after two years return again to the hemp crop.*

Having thus given you a general outline of my mode of farming, I will now state the value of my average products, premising that I have estimated hemp at $120 per ton, because it will average that price by holding on to my crop a year or two, when it gets below that price.

60 acres of hemp, averaging one year with another 20 tons, at $120, $2,400
60 acres of corn, intended for feeding stock and for bread, - - - 000
350 sheep, average at the present low price of wool, $1 per net fleece, - 350
Value of coarse parts of wool and increase of flock, - - - - - 50
Sale of hogs, bacon and lard, average - 400
Sale of milch cows and beef cattle, say - 100

Total, $3,300

My cattle are of the old fashioned Teeswater and Patton stock. Though excellent for the richness and abundance of their milk, they will sell ordinarily for only $25 or $30 per head, grass-fed. After reserving what is necessary for our own use and consumption, my sales will not average more than the above sum.

To the above, the following additions should be made:

Within the three last years I have sold 55 mules, and have added those to my working stock, which have fully kept up their value. The *increased* value of these mules, (2 and 3 years years old when sold,) I estimate at $35 each, making a total of $1,925, and a profit for each of those years, of - 622

$3,922

From the above, the following deductions should be made:

Wages of a young man to work and superintend the negro laborers, - - - - $200
Cash for cutting and breaking hemp, 200
Clothing and tax for 5 men and 3 women, - - - - 160
Tax on land and other property, - 30
Blacksmith's and wagon-maker's account, average - - 60

$650

But from this amount, should be deducted what is saved in family expenses by living on a farm; such as house-rent, fuel, bread, bacon, vegetables, poultry, fresh meat, butter, milk, &c., which may be estimated at $500, leaving $150 to be deducted from the above sum of $3,922, and making the profit on the whole sum invested, $3,722.

I may have omitted some small items of expense which have not occurred to me, but these will be more than covered by several small items of profit; such as hay, cord-wood, hides of cattle and sheep, potatoes, apples, and other vegetables, butter, &c. I throw them in to balance any possible omissions I may have made on the other side.

I have allowed nothing for expense and tax on young negroes, because their increased annual value will fully pay for such expense, and also keep up the number of hands by supplying losses by death. Nor have I made any allowance for the annual increase in value of 1,500 or 2,000 young locust trees, an item of no little importance in my judgment, and which might fairly be estimated as a part of the annual profits of my farm

* Hemp, if an exhauster of soil, is a very slow one. Deterioration can scarce be perceived in the last of ten successive crops on the same field.—T. B. S.

The profits upon mule stock, (as I have quitted that business,) will cease after the present year; but they will be fully supplied by the increased number of hogs and sheep which I shall be able to keep, and by the crop of wheat which I shall raise every second year. Sixty acres of clover will furnish great facilities for increasing the number of my hogs, and besides the corn consumed by my mule stock, will now go to my hogs; and a further improvement of my land will result from adopting the clover in my rotation.

Interest on the capital invested at the rate of 12 per cent. per annum, -	$3,840
Net profit as above, - - - -	3,720
Profit 12 per cent. less, - - -	$120

Do not the facts herein detailed, show that estimating land at $50 per acre, farming is a most profitable business? And do they not show the additional fact, that the raising of hemp is more profitable than the culture of cotton or grazing of cattle. Yours, truly and sincerely,

THOS. B. STEVENSON, esq., *Frankfort, Ky.*

RULE FOR ASCERTAINING THE WEIGHT OF CATTLE, SHEEP AND HOGS.

In the "Cattle Keeper's Guide" there is a short and easy method given to find the weight of live stock, which will be of considerable utility to breeders. Let the animal stand square, put a string just behind the shoulder blade; then put the string on the tail so as to form a plumb line with the hinder part of the shoulder blade; take the dimensions on the rule as before, which is the length, and work the figures in the following manner: girth 6 ft. 4 inches, length 5 ft. 3 inches, which multiplied together make 33⅓ square superficial feet, that again multiplied by 23 (the number of pounds allowed to each superficial foot, for an animal measuring not less than five nor over eight feet in girth,) makes 766 lbs. Where the animal measures less than 6 and over 8 feet in girth, 31 is the number of pounds to each superficial foot. Again, suppose a pig or any small beast should measure 2 feet in girth, and two feet along the back, which multiplied together make 4 square feet; that multiplied by 11, the number or pounds allowed for each square foot, when measurement is less than three feet in girth, makes 44 lbs. Suppose again a calf, sheep or hog should measure 4 ft. 6 inches in girth, and 3 ft. 9 inches in length, which multiplied together make 16¾ feet, that multiplied by 16, the number of pounds allowed to animals measuring less than five feet and more than three in girth, makes 268 lbs. The weight of cattle, sheep and hogs may be as exactly taken this way, as is at all necessary for any computation of valuation of stock, and will answer exactly to the four quarters sinking the offal; which every man if he knows a few of the first rules of arithmetic and can get a bit of chalk and a string can readily perform. A reduction must be made for a half fatted beast, of one pound in twenty, more than from a fat one; and from a cow that has had calves and is only half fat, two pounds in twenty must be deducted.

For the Farmers' Register.

GREEN-SAND IN GEORGIA.

Mount Zion, Hancock Co., Georgia, January 23rd, 1841.

Dear Sir.—Nothing but a wish to improve our practices in agriculture, and to develope the natural resources already provided for us, has caused me, a stranger, to intrude this communication on your attention, and I beg of you to dispose of it as the above reasons may direct your better judgment. It is on the subject of what you call green-sand or gypseous earth. During last year J. R. Colling, our state geologist, made an examination of this section, and found immense beds of what he pronounces to be this earth, commencing at what he considers the western limit of the oceanic region, and extending through a parallel region of some 30 or 40 miles. It appears to be by no means continuous or of uniform quality; and we are anxious to make a proper use of it, though not to be duped by quackery or an inordinate zeal; and I know of no other means of diffusing useful information on that subject than through the Farmers' Register.

I have had a specimen from my farm analyzed by Mr. Colling, and he says he has done it with all possible care and accuracy, and reports 100 grains dried to contain

Water of absorption, - - -	6 grs.
Fine silicious sand, - -	9 "
Sulphate of lime, - - -	9.75 "
Carbonate of lime, - - -	5.46 "
Protoxide of iron, - - -	4 "
Carbonate of magnesia, - - -	3 "
Potassa, - - - - -	12.37 "
Silicia, - - - -	36 "
Alumine, - - - - -	6 "
Loss, - - - -	8.42 "
	100

My residence is about 10 miles above the oceanic region, in latitude 33.26, longitude 83.2, and about 700 feet elevation above the ocean, on a small water course making into the ocean. The virgin soil was remarkably fertile, particularly for tobacco and grain; and is so now when the forest is taken off, though by neglect it is easily gullied and galled from the soil being soft.

We generally find the green-sand in the gullied bluffs near the creek bottoms—I believe in every case under what is called a *ferro-argillaceous* subsoil of a deep red color, though the strata of rocks beneath this subsoil, and in the neighborhood of the green-sand, varies exceedingly. I believe what is called feldspatic gneiss is most common, but you will frequently find in the same gully hornblende, hornblende slate, pyrites or sulphuret of iron, mica slate, and some blocks of granite. Mr. Colling found in different places what he conceived a full gold formation, quartz, &c. In analyzing [the green-sand] from the neighborhood from the ridges, he found from 4 to 5 per cent. of carbonate of lime, though no sulphate of lime; from the creek deposites he found less carbonate of lime, but about 3 per cent. of sulphate of lime. How deep the deposites of green-sand are we cannot tell; we penetrated one bed about 10 feet, and it appeared to get better. It is generally of a bluish-green with white streaks, and changing from that to a yellow and chocolate color, alternating

from one to the other in veins, is always soft, more disposed to absorb water than common earth; and, as it dries, falls into an ash-colored powder, and I should suppose its average depth below the original soil would be from 6 to 8 feet. In some specimens there is a good deal of fine mica and sulphuret of iron. I have been thus particular in describing both the substance and the location, thinking it might aid you in your speculations on its natural history, and probably its application as a fertiliser.

There appears in this section some disposition to change the old ruinous system of agriculture, and to adopt in its stead an improving one; and though I am but little used to writing, if I can furnish you with any facts that would enable you to effect the revolution, I shall be amply compensated for my time and labor.

I am but illy prepared for geological discussion; but this green-sand earth does not look to me, when in place, to be a deposite. It has more the appearance of rock or some solid substance decomposed; and as it shows very few or no animal remains, I am very much inclined to think it an older substance than marl or the carbornate of lime and shell formation of the oceanic region, (though this opinion is merely for what it is worth.) What we now desire of you is, through the Farmers' Register, to tell us how to use it.

Very respectfully,

J. S. WHITTEN.

As little as we know about green-sand, (and we have as often admitted our ignorance on this mysterious subject, as we have charged it on others who pretend to abundant and all-sufficient knowledge,) there is no difficulty in pronouncing that the earth in question is certainly what geologists call "green-sand;" and according to the analysis, it is uncommonly rich. Besides a larger proportion of potash than usual, (to which some geologists ascribe the effect as manure,) there is a valuable amount of carbonate of lime, and perhaps of carbonate of magnesia, and a very large proportion of the unusual ingredient, sulphate of lime, or plaster of Paris. Now with all our disbelief of what geological surveys state, or indicate, on the effects of green-sand as manure—and with our distrust of its general and profitable effects as promised by geological "quackery," we should, if in our correspondent's place, expect much benefit from the use of this earth. If put on calcareous soil, and on suitable plants, (clover especially,) the green-sand of itself will be beneficial; though to what extent, and for what length of time, is the question yet to be settled. If put on acid soil, where the green-sand of itself would be utterly useless, as we think, the calcareous ingredients (carbonate of lime and magnesia) of the manure would neutralize the acid of the soil, and then permit the green-sand and the gypsum to act beneficially.

For our opinions, expressed at length on this subject, we can here but refer our correspondent to the whole report on the use of green-sand and green-sand marl on the Pamunkey lands, contained from page 679 to 691 of volume 8, Farmers' Register.—ED. F. R.

ON SUBSOIL PLOUGHING.

From the New England Farmer.

The English agricultural journals for the last few years, have contained many articles upon the practice of subsoil ploughing. Our readers, we suppose, understand this to be the use of a plough having a narrow *double share*, or a small share on each side of the coulter and no mould-board. It is used in each furrow after the common plough, and breaks up and stirs the subsoil to the depth of several inches, without bringing it up and incorporating it with the soil. Many farmers in England have derived great advantages from this process, in connexion with under-draining. Others have found it waste labor. The January No. of the Journal of the Royal Agricultural Society of England contains a communication upon this subject by H. S. Thompson, Esq., parts of which we extract below.

Heretofore we have received the impression that our Transatlantic co-workers deemed this process peculiarly suited to stiff and heavy soils, consisting mostly of compact, adhesive clays. They now begin to intimate that shallow soils of the lighter kinds may be quite as susceptible of improvement under this process as any other. We have often conjectured that it must be thus; and have supposed that many of our shallow, gravelly and sandy soils in New England would be rendered more retentive of moisture and more fertile by simply subsoiling without under-draining. Some of the observed facts, leading to the supposition are, that we have seen apple trees growing better in gravel that had been moved, than in the deepest and richest mould; that grass, on a narrow strip where the subsoil had been thrown out and replaced when putting down the logs of an aqueduct, was much more abundant than on the adjoining portions of the field; that an immense—a *mammoth* squash had grown upon an unmanured gravel heap that had been formed when digging a well. The loosening of the subsoil, making it more pervious to air and water—bringing many particles into contact with particles that have not touched them before, and thus, perhaps, promoting slight fermentations and new chemical combinations, may fit the subsoil to attract, receive and nourish the roots of plants. Can our practical men give us any useful facts or observations upon this subject? The matter is worthy of attention.—ED. N. E. F.

BY H. S. THOMPSON, ESQ.

Public opinion is still much divided on the subject of subsoil ploughing. Some very eminent farmers maintain that it is lost labor; while others, equally eminent, think no system of husbandry complete without it. When men of sense and experience differ respecting matters of fact which have come under their own observation, it will generally be found that, like the travellers disputing about the color of a chameleon, neither would be wrong if he would only allow his opponent to be right. To take a case in point—one farmer of

The profits upon mule stock, (as I have quitted that business,) will cease after the present year; but they will be fully supplied by the increased number of hogs and sheep which I shall be able to keep, and by the crop of wheat which I shall raise every second year. Sixty acres of clover will furnish great facilities for increasing the number of my hogs, and besides the corn consumed by my mule stock, will now go to my hogs; and a further improvement of my land will result from adopting the clover in my rotation.

Interest on the capital invested at the rate of 12 per cent. per annum, -	$3,840
Net profit as above, - - - -	3,720
Profit 12 per cent. less, - - -	$120

Do not the facts herein detailed, show that estimating land at $50 per acre, farming is a most profitable business? And do they not show the additional fact, that the raising of hemp is more profitable than the culture of cotton or grazing of cattle. Yours, truly and sincerely,

———.

THOS. B. STEVENSON, esq., *Frankfort, Ky.*

RULE FOR ASCERTAINING THE WEIGHT OF CATTLE, SHEEP AND HOGS.

In the "Cattle Keeper's Guide" there is a short and easy method given to find the weight of live stock, which will be of considerable utility to breeders. Let the animal stand square, put a string just behind the shoulder blade; then put the string on the tail so as to form a plumb line with the hinder part of the shoulder blade; take the dimensions on the rule as before, which is the length, and work the figures in the following manner: girth 6 ft. 4 inches, length 5 ft. 3 inches, which multiplied together make 33⅓ square superficial feet, that again multiplied by 23 (the number of pounds allowed to each superficial foot, for an animal measuring not less than five nor over eight feet in girth,) makes 766 lbs. Where the animal measures less than 6 and over 8 feet in girth, 31 is the number of pounds to each superficial foot. Again, suppose a pig or any small beast should measure 2 feet in girth, and two feet along the back, which multiplied together make 4 square feet; that multiplied by 11, the number or pounds allowed for each square foot, when measurement is less than three feet in girth, makes 44 lbs. Suppose again a calf, sheep or hog should measure 4 ft. 6 inches in girth, and 3 ft. 9 inches in length, which multiplied together make 16¾ feet, that multiplied by 16, the number of pounds allowed to animals measuring less than five feet and more than three in girth, makes 268 lbs. The weight of cattle, sheep and hogs may be as exactly taken this way, as is at all necessary for any computation of valuation of stock, and will answer exactly to the four quarters sinking the offal; which every man if he knows a few of the first rules of arithmetic and can get a bit of chalk and a string can readily perform. A reduction must be made for a half fatted beast, of one pound in twenty, more than from a fat one; and from a cow that has had calves and is only half fat, two pounds in twenty must be deducted.

For the Farmers' Register.

GREEN-SAND IN GEORGIA.

Mount Zion, Hancock Co., Georgia, January 23rd, 1841.

Dear Sir.—Nothing but a wish to improve our practices in agriculture, and to develope the natural resources already provided for us, has caused me, a stranger, to intrude this communication on your attention, and I beg of you to dispose of it as the above reasons may direct your better judgment. It is on the subject of what you call green-sand or gypseous earth. During last year J. R. Colling, our state geologist, made an examination of this section, and found immense beds of what he pronounces to be this earth, commencing at what he considers the western limit of the oceanic region, and extending through a parallel region of some 30 or 40 miles. It appears to be by no means continuous or of uniform quality; and we are anxious to make a proper use of it, though not to be duped by quackery or an inordinate zeal; and I know of no other means of diffusing useful information on that subject than through the Farmers' Register.

I have had a specimen from my farm analyzed by Mr. Colling, and he says he has done it with all possible care and accuracy, and reports 100 grains dried to contain

Water of absorption, - - -	6 grs.
Fine silicious sand, - -	9 "
Sulphate of lime, - - -	9.75 "
Carbonate of lime, - - -	5.46 "
Protoxide of iron, - - -	4 "
Carbonate of magnesia, - - -	3 "
Potassa, - - - - -	12.37 "
Silicia, - - - -	36 "
Alumine, - - - - -	6 "
Loss, - - - -	8.42 "
	100

My residence is about 10 miles above the oceanic region, in latitude 33.26, longitude 83.2, and about 700 feet elevation above the ocean, on a small water course making into the ocean. The virgin soil was remarkably fertile, particularly for tobacco and grain; and is so now when the forest is taken off, though by neglect it is easily gullied and galled from the soil being soft.

We generally find the green-sand in the gullied bluffs near the creek bottoms—I believe in every case under what is called a *ferro-argillaceous* subsoil of a deep red color, though the strata of rocks beneath this subsoil, and in the neighborhood of the green-sand, varies exceedingly. I believe what is called feldspatic gneiss is most common, but you will frequently find in the same gully hornblende, hornblende slate, pyrites or sulphuret of iron, mica slate, and some blocks of granite. Mr. Colling found in different places what he conceived a full gold formation, quartz, &c. In analyzing [the green-sand] from the neighborhood from the ridges, he found from 4 to 5 per cent. of carbonate of lime, though no sulphate of lime; from the creek deposites he found less carbonate of lime, but about 3 per cent. of sulphate of lime. How deep the deposites of green-sand are we cannot tell; we penetrated one bed about 10 feet, and it appeared to get better. It is generally of a bluish-green with white streaks, and changing from that to a yellow and chocolate color, alternating

from one to the other in veins, is always soft, more disposed to absorb water than common earth; and, as it dries, falls into an ash-colored powder, and I should suppose its average depth below the original soil would be from 6 to 8 feet. In some specimens there is a good deal of fine mica and sulphuret of iron. I have been thus particular in describing both the substance and the location, thinking it might aid you in your speculations on its natural history, and probably its application as a fertiliser.

There appears in this section some disposition to change the old ruinous system of agriculture, and to adopt in its stead an improving one; and though I am but little used to writing, if I can furnish you with any facts that would enable you to effect the revolution, I shall be amply compensated for my time and labor.

I am but illy prepared for geological discussion; but this green-sand earth does not look to me, when in place, to be a deposite. It has more the appearance of rock or some solid substance decomposed; and as it shows very few or no animal remains, I am very much inclined to think it an older substance than marl or the carbornate of lime and shell formation of the oceanic region, (though this opinion is merely for what it is worth.) What we now desire of you is, through the Farmers' Register, to tell us how to use it.

Very respectfully,

J. S. WHITTEN.

As little as we know about green-sand, (and we have as often admitted our ignorance on this mysterious subject, as we have charged it on others who pretend to abundant and all-sufficient knowledge,) there is no difficulty in pronouncing that the earth in question is certainly what geologists call "green-sand;" and according to the analysis, it is uncommonly rich. Besides a larger proportion of potash than usual, (to which some geologists ascribe the effect as manure,) there is a valuable amount of carbonate of lime, and perhaps of carbonate of magnesia, and a very large proportion of the unusual ingredient, sulphate of lime, or plaster of Paris. Now with all our disbelief of what geological surveys state, or indicate, on the effects of green-sand as manure—and with our distrust of its general and profitable effects as promised by geological "quackery," we should, if in our correspondent's place, expect much benefit from the use of this earth. If put on calcareous soil, and on suitable plants, (clover especially,) the green-sand of itself will be beneficial; though to what extent, and for what length of time, is the question yet to be settled. If put on acid soil, where the green-sand of itself would be utterly useless, as we think, the calcareous ingredients (carbonate of lime and magnesia) of the manure would neutralize the acid of the soil, and then permit the green-sand and the gypsum to act beneficially.

For our opinions, expressed at length on this subject, we can here but refer our correspondent to the whole report on the use of green-sand and green-sand marl on the Pamunkey lands, contained from page 679 to 691 of volume 8, Farmers' Register.—ED. F. R.

ON SUBSOIL PLOUGHING.

From the New England Farmer.

The English agricultural journals for the last few years, have contained many articles upon the practice of subsoil ploughing. Our readers, we suppose, understand this to be the use of a plough having a narrow *double share*, or a small share on each side of the coulter and no mould-board. It is used in each furrow after the common plough, and breaks up and stirs the subsoil to the depth of several inches, without bringing it up and incorporating it with the soil. Many farmers in England have derived great advantages from this process, in connexion with under-draining. Others have found it waste labor. The January No. of the Journal of the Royal Agricultural Society of England contains a communication upon this subject by H. S. Thompson, Esq., parts of which we extract below.

Heretofore we have received the impression that our Transatlantic co-workers deemed this process peculiarly suited to stiff and heavy soils, consisting mostly of compact, adhesive clays. They now begin to intimate that shallow soils of the lighter kinds may be quite as susceptible of improvement under this process as any other. We have often conjectured that it must be thus; and have supposed that many of our shallow, gravelly and sandy soils in New England would be rendered more retentive of moisture and more fertile by simply subsoiling without under-draining. Some of the observed facts, leading to the supposition are, that we have seen apple trees growing better in gravel that had been moved, than in the deepest and richest mould; that grass, on a narrow strip where the subsoil had been thrown out and replaced when putting down the logs of an aqueduct, was much more abundant than on the adjoining portions of the field; that an immense—a *mammoth* squash had grown upon an unmanured gravel heap that had been formed when digging a well. The loosening of the subsoil, making it more pervious to air and water—bringing many particles into contact with particles that have not touched them before, and thus, perhaps, promoting slight fermentations and new chemical combinations, may fit the subsoil to attract, receive and nourish the roots of plants. Can our practical men give us any useful facts or observations upon this subject? The matter is worthy of attention.—ED. N. E. F.

BY H. S. THOMPSON, ESQ.

Public opinion is still much divided on the subject of subsoil ploughing. Some very eminent farmers maintain that it is lost labor; while others, equally eminent, think no system of husbandry complete without it. When men of sense and experience differ respecting matters of fact which have come under their own observation, it will generally be found that, like the travellers disputing about the color of a chameleon, neither would be wrong if he would only allow his opponent to be right. To take a case in point—one farmer of

my acquaintance, drained deep and used the subsoil plough with every precaution and care, yet found it fail; another, following precisely the same plan, permanently improved the texture of the soil: both were anxious that their friends should profit by either the example or the warning, and lost no opportunity of making the result public. For want of a better term, both experiments were said to have been made on *stiff* soils: both are credible men; and the natural result of such conflicting testimonies is, that the question remains undecided. Here we feel the want of some acknowledged classification of soils, founded on chemical analysis. No two witnesses could be more directly at issue than those alluded to above: and very possibly, both one and the other may have been quoted by the supporters or opposers of the subsoil plough as triumphantly establishing their position. The moment, however, that the two experiments are referred to their place in the geological map, the whole difficulty vanishes. One was made in a stiff, marly clay, on the new red sand-stone formation; the other on that most tenacious of all soils, the lias clay: the one was permanently improved; the other ran together again almost as soon as done.

It would be but waste of time to give any additional proof of what has already been fully established, viz: that on some soils the subsoil plough has been eminently useful; that on others it has signally failed. The grand desideratum, at present, is the discovery of some test which shall enable us, on the examination of any given soil, to pronounce tolerably confidently that it would be advisable or useless to subsoil it. I feel fully persuaded that the per centage of alumina, or pure clay, in any soil, furnishes the required criterion. In the two instances quoted above, I procured an analysis of the soils, and found that, in the one on which subsoiling was of no use, the proportion of alumina was twice as great as in the other: this most unexpected result first suggested the rule above stated; and in all the cases which I have since had an opportunity of examining, it has been fully confirmed. A rule of this kind can only be established by numerous experiments on various soils; but if those gentlemen who are so anxious to promote agricultural improvement, would kindly forward to the secretary of the Yorkshire Agricultural Society the result of their own experiments with the subsoil plough, accompanied by either an analysis of the subsoil on which it was tried, or even a specimen of the subsoil for analysis, the question of subsoil ploughing would very soon be set at rest; and it would be as easy to point out the soils which would be benefited by it, as it is now to distinguish turnip and barley soils from those adopted for wheat and beans.

I will now state the steps taken to test the truth of the rule above mentioned, viz: that the per centage of alumina ought to guide us in the selection of soils for subsoiling. I wrote to several gentlemen whom I knew to have used the subsoil plough, and on whose accuracy I could rely, and begged that they would furnish me with some account of their experiments, and send me a specimen of the subsoil for analysis. I have, wherever practicable, given the account in the words of the writer; and can only regret that the shortness of time has prevented my collecting more evidence on the subject. The following essay was sent me by that very intelligent farmer, Mr. Black, land-agent to the Earl of Zetland, at Marske, in Cleveland:

"There is probably no agricultural operation that has been so strongly recommended by some, and so much censured by others, as subsoil ploughing. Its advocates have represented it as the great panacea for all soils and situations; and its introduction, they say, will form a new epoch in agriculture. Believing that neither party have viewed the subject properly in all its bearings, I beg leave humbly to offer a few remarks, first, on the soil that will receive the most permanent improvement from subsoil ploughing; and, second, where it can be of no utility. The soil that I believe will receive the most permanent improvement from subsoil ploughing is one in which silica predominates; indeed all shallow soils, of the lighter kinds, will be improved by it; and particularly so if there is any moorland pan, or indurated incrustations, formed by the weight of the plough going for a number of years at the same depth, or from other causes. If the subsoil is of good quality, and a greater depth of furrow is wished for, the subsoil plough may be used with advantage; the percolation of water prepares the subsoil for amalgamation with the surface. Stong clayey land cannot be permanently improved by subsoil ploughing. Alumina is a tenacious, compact, adhesive substance, its parts are in minute divisions, and have great affinity for each other. In September, 1838, I subsoiled two fields of 10 acres each, which had been previously drained, and as the *nomenclature* of soils is not at all intelligible, and has led to much mischief in detailing experiments, I send you the analysis of 300 grains of the field since ploughed.

300 grains consisted of—

	Grains.
Moisture,	61
Soluble matter, principally vegetable,	3
Lime, in the state of carbonate,	2
Peroxide of iron,	50
Alumina,	130
Silica, or fine land,	20
Vegetable matter,	33
Loss,	1
	300

"One of these subsoiled fields produced 35, and the other 27½ bushels of wheat per acre; the field that produced the greatest number of quarters per acre was subsoiled across the drains; the other parallel with them. I do not attribute this great falling off per acre altogether to the parallel subsoiling, although I think the other is decidedly the best method. In December, 1839, one of the fields was ploughed, but no traces remained of the subsoil plough having been used. I expected, from the complete breaking up of the subsoil, that the parts would have remained distinct for years; but such was not the case: they had run together, and were as compact as when first moved by the plough, without even the appearance of watershake or fissure. This I was not prepared to expect. Separated by a fence only is another field of a similar description, which was fallow at the same time, but not subsoiled; the crop on this field was quite equal to the other. A neighbor subsoiled one acre of a field which was sown with

beans; this field I frequently saw through the summer, and during that period the part subsoiled was by no means superior to the other."

On reading this account my attention was naturally arrested by the great difference between the produce of the two fields subsoiled by Mr. Black; and as it was important to ascertain whether any sufficient cause could be assigned independent of the different methods adopted in subsoil ploughing them, I addressed him the following questions:—Is the field which produced 35 bushels per acre of better quality than the one which produced 27½; or was it better manured, or the seed time more favorable? His answer was as follows:—"The land, (viz., that which produced 35 bushels) is much inferior. I ascribe the superior crop to the field having been more recently drained than the other. I have always found the first crop after draining above an average. Lime, too, was applied to this field two years before, which did not appear to have acted until the water was taken off: and last, although not least, it was subsoiled across the drains. As regards manure, I consider the fields alike in that respect. Both fields were sown under favorable circumstances." Draining after lime appears quite adequate to account for this increased produce; but even should we attribute a portion of it to subsoiling across instead of parallel to the drains, the whole effect seems to have vanished before the next ploughing, as we read in Mr. Black's account. In confirmation of Mr. Black's views, I will quote the opinion of Mr. Vansittart, of Kirkleatham, whose experiments I had an opportunity of observing whilst in progress. I need hardly add that they were made in the most judicious and effectual manner. "Upon subsoiling I have nearly made up my mind, and am satisfied that it is not of permanent use on this soil." We have here the experience of Mr. Vansittart, Mr. Black, and a neighboring farmer, all of whom agree in thinking that subsoiling is of no use on their land. The quality of land is the same in all: consisting of a level and uniform tract of that peculiarly tenacious soil, the lias clay, containing, as we see by the analysis furnished by Mr. Black, (made at Edinburg,) no less than 43 per cent. of alumina or pure clay. The next evidence I shall adduce is that of Mr. Stevenson, of Rainton, near Boroughbridge, a very enterprising and judicious tenant-farmer; whose farm chiefly consists of a stiff red clay, on the red sand-stone formation. He began by subsoiling 17 acres in the winter of 1835-'6: the summer following, these 17 acres grew a remarkable crop of turnips, though the year was in general a failing one for that crop. The turnips were followed by barley, seeds, wheat—all good crops. When ploughed deep again for turnips, at the end of the course, it was found to work much lighter than the land not subsoiled. The man who held the plough in both instances found a great difference in the mellowness of the soil turned up, and consequently in the labor of the horses. The subsoil, on analysis, showed 24 per cent. of alumina. The exact analysis is as follows:

Specific gravity, 2,070.

100 parts contain—

Of water of absorption,	7
Silica,	55
Alumina,	24
Oxide of iron,	7½
Soluble matter,	2
Loss,	4½
	100

Mr. Stevenson found so much benefit from the operation, that he has since subsoiled 27 acres, and means to continue it on a large scale. A glance at the experiments above described enables us to make a first approximation to the solution of this much debated question. It appears probable that a soil containing not more than 24 per cent. of alumina may be subsoiled with advantage, but that when it exceeds 40 per cent, no permanent improvement is derived from the operation. Many more experiments must be made before this approximation can be so modified as to make it of general application: and I would beg to suggest to those gentlemen who may feel disposed to assist in the inquiry, that any account of the use of the subsoil plough on land containing more than 24 and less than 40 per cent of alumina would be particularly valuable, as the first point to ascertain is, the maximum quantity of alumina which may exist in land without making it unfit for subsoiling. From what has been stated above, there is reason to suppose that this maximum point lies between 24 and 43 per cent.; every experiment, therefore, made on soil containing more than the one and less than the other, reduces the doubtful soils within narrower limits. It would also be advisable to try the effect of subsoiling on two soils containing equal quantities of alumina, but otherwise differing in the composition, as it is possible that other substances, in combination with alumina, may in some degree affect the result.

I have, thus far, confined myself to stiff soils; but as the subsoil plough has been little used on light land, and its effect therefore is little known, the following paper from Mr. Denison, of Kilnwick, Percy, will be read with great interest:

[Mr. Denison's operations were made on a field consisting of sandy hills, light, blow-away soil, and marshy hollows—peaty soils. After having described the drainage and its expense, he says:]

"The first process after the drains were complete was in the months of March and April to pare and burn; and to sow rape and turnips, drilled with half-inch bones and soot in the following month. The crop was not at all regular; being good where the soil was deep and black, but very bad where it was sandy: the sole being hard and the action of the sun having great power to the very roots of the plants.

"In the winter of the same year, after the turnips and rape were consumed, I ploughed land in the direction of the old furrows, and the subsoil plough followed, worked by two oxen and four horses; loosening the hard sandy sole on the higher ground, and tearing up the roots of the rushes, &c., on the low. In this state the land lay till the month of April following, when Finlayson's drag-harrow was applied across the ploughings, which brought up all the roots and rubbish to the surface; these were then raked off and burnt. I then sowed the black Tartarian oats, and ploughed them in; the ground was then harrowed and pressed down with a clod-crushing roller, made by Mr. Croskill, of Beverley, which imple-

ment has been of the greatest service to me in almost every stage and crop. It has been the means of consolidating the earth, which would otherwise have been too light, and it has kept the moisture in also. It has a decided advantage over every other kind of roller in this respect, because it leaves an uneven surface instead of a flat one, from which the rain, in sandy land especially, is apt to run off without nourishing or refreshing the crop.

"The oats came out very healthy and had no check: in sixteen weeks from the time of sowing they were reaped, and when thrashed yielded 10½ quarters per acre, which were sold at 26*s.* per quarter, and this from land that was let two years before at 2*s.* 6*d.* per acre.

"I calculate the expense of subsoil ploughing, according to my mode of using it, at 26*s.* per acre, thus:

Four horses and two men, per day,	14*s.*
Two beasts and one man,	5*s.*
	19*s.*

"These will do 3 rods per day. The oxen are yoked to the plough, and the four horses precede. I sowed 40 acres with oats, of the same flat of land that had been pared and burnt, but not subsoiled, from want of time. The produce of this was not more than 3 quarters per acre, and straw small and short; a very fair proof of the advantage of subsoiling.

"I have now 100 acres of wheat and oats growing on what was the very worst part of the whole property, and considered perfectly useless. It has been drained, pared and burnt, and subsoiled exactly after the mode detailed; and it looks as promising as what was so good last year. The land upon which I had potatoes exhibits as decided a superiority; and I shall in another year be able to state what effect subsoiling has upon the turnip crop as upon the produce of the wheat.

R. Denison."

OBSERVATIONS ON CATTLE AND ROOTS.

From the Southern Agriculturist.

Palmetto Hall, Dec. 19*th*, 1840.

Mr. Editor:--I am sorry to see that the desire to cultivate root crops and the grasses, is not keeping pace with the mania for improved breeds of cattle, hogs, &c., for the fact is, that the breed of animals decidedly the best adapted to our present cruel course of treatment is our present, as the valuable property of being able to endure rain, cold, and hunger, has been carefully cultivated and kept in practice for many generations past, and the experience with one half-Durham heifer, one three-quarter Durham bull and one Devon cow, fully satisfies me that the *part* Durhams and I think the whole Durhams too, will not grow as large nor keep as fat as our native cattle, if they can ever be called fat, and the Devon will grow no larger, and even with much better fare, will not more than equal the natives, which you see is in strong contrast with Mr. Carrol's experience; and as regards breeding, his principles are certainly a smashing innovation upon the hitherto received theories and practices on the subject. All this is merely an introduction to my experience and theory of the cultivation of roots.

Among the beets I give the decided preference to the mangel wurtzel over the sugar beet, because it suits our shallow soils better, as it grows more above than below ground, and consequently is more easily cultivated, and contends better with grass and weeds, stands our climate and insects, and the predatory habits of our negroes better, and is longer fit for use, and, I believe, more productive. I planted flush in one of the poorest beds in my garden, which is a salt homock, in February, 1838, one ounce of mangel wurtzel, they bore seed the summer of 1839, and in July of 1840 I pulled three roots that were about two and a half feet long, and five or six inches through in the largest diameter, and I believe that cattle would then have eaten them. I cannot say what proportion withstood the first summer as I made no observation on the subject, being ignorant of the general belief, that they could not endure the summer's sun. In February, 1840, I planted one pound of the sugar beet seed in the same garden, and similar (but not the same,) soil, and I have now about one third remaining, and they are so hard that cattle refuse to eat them. Both parcels were neglected during the summer, and therefore did not serve to form any fair idea of what they might do under proper management. I have sown some of the Altingham carrot, and the mangel wurtzel in exactly the same spot, in order to give them a fair and comparative trial, and I will try to let you know the result in due time. I have adopted the following system of cultivation as the only one suitable to our circumstances. The land being level, (if it is not it must be made so,) I track it every three feet with the bull tongue plough, and if the soil requires manure, which almost all our lands do, I run the barshare or shovel plough in the track as deep as possible, and scatter the manure at the bottom of this trench. I then turn back and bed up as well as I can with the plough, and finish off with the hoe, or bed entirely with the hoe if more convenient. With a small and very simple dibble, I dibble holes for the seeds at every six inches, and put only two or three seeds in each hole, and cover it with the hand or heel, so as to press the earth close to the seed. When the plants acquire a sufficient size, I thin the beets to one plant in every other hole, the intervening ones being sufficiently large to feed the cows or pigs, but the carrots I leave one plant in each hole, as they require less room. As we do not require these roots until sweet potatoes are done, I think that the best time to sow them would be in the fall, say about one month later than the ruta baga, as they would then be fit to feed upon by April, if not earlier, which is the time we stand most in need of food for our cattle, for after June, or even May, we have grass enough in our corn fields.

ON THE GEORGIA FEVER AMONG HORSES.

From the Southern Agriculturist.

January 19*th*, 1841.

Mr. Editor:—There is now prevailing in the lower part of our state, and perhaps elsewhere, a disease known as the Georgia fever, which attacks horses, and has proved fatal to a large number of them. I am not aware of its having ever been here before the last season, when a number of horses in the livery stables in Charleston were

attacked, and a large portion of those so attacked died, as I have been informed. It was found to be highly contagious. With the summer, I believe it ceased, at least I heard nothing of it. But it again made its appearance this winter, in the city, and in the livery stables. Some of my friends who unfortunately carried their horses there, got them infected, and have lost several. The disease has spread into the country, producing much uneasiness, and loss, in the services of the animals, and in many cases the loss of the animals themselves. My object in addressing this note to you is, to request information as to the origin, nature, and cure of the disease. Will either you or some of your correspondents furnish the information requested above? Yours, truly, G. A.

Remarks of the Editor.—We can furnish our correspondent with but little information on the subject, but hope that some of our readers will do so. The name of the Georgia fever, we understand, was given to this disease *here*, because it was first observed among some horses brought from that state. The disease appears to be highly inflammatory. The first symptoms are a drooping of the head, a loss of appetite, and of course of spirit, a running of the eyes and nose. As the disease progresses the feet and limbs become swollen. The remedy, which, as we have been informed, has been found most efficacious, has been to bleed copiously as soon as the symptoms are noticed. This is said to be almost a certain cure. We have had two horses laboring under this disease, both were bled copiously, (from 4 to 6 quarts,) and fed lightly on bran and oats. They are now both well, and were sick very little more than a week. No medicine was given. In fact, we are informed by one who has had considerable experience, that all medicine proves decidedly injurious, and that he had not seen a single instance in which it was administered, that the horse did not die. If the first bleeding should not prove sufficient, a second is resorted to, but this is rarely necessary. When the legs begin to swell, the disease is said to be on the decline. We have given these imperfect answers to the queries of our correspondent, with the hope that the remedy which has been so efficacious in our hands, may be found equally so in that of our friends, should they be so unfortunate as to have occasion for it. We request, however, that some of our readers will reply to them more fully than we have been able to do.—Ed. So. Agr.

EXTRACTS FROM THE ANNIVERSARY ORATION OF THE STATE AGRICULTURAL SOCIETY OF SOUTH CAROLINA.

By Gen. George McDuffie; read before the society on the 26th of November, 1840, at their annual meeting in the Hall of the House of Representatives.

* * * * *

The greatest, most prevailing, and most pernicious of all the practices which distinguish and deform the agriculture of this and the other cotton planting states, is the almost exclusive direction of the whole available labor of the plantation, to the production of our greatest market staple, and the consequent neglect of all the other commodities which the soil is capable of producing or sustaining, and which are essential to supply the wants of the establishment. No scheme of reform or improvement can produce any great and salutary results, which does not lay the axe to the root of this radical vice in our husbandry.

It should be, therefore, an inviolable rule in the economy of every plantation, to produce an abundant supply of every species of grain, and of every species of live stock, required for its own consumption. I am aware, that in peculiar localities, when the price of cotton has been high, examples may be found of successful planting where this rule has been disregarded.

But this serves only to prove, that even a bad system prosecuted with great energy and under favorable circumstances, may be crowned with a considerable share of the success which would more certainly have rewarded a good one. Such examples, if they constitute an exception to the rule I have laid down, by no means impair its force or disprove its general expediency. The economy of a plantation should be founded, not upon temporary and mutable expedients, but upon general and permanent rules, adapted to all the probable vicissitudes of trade and of the seasons, and all the probable fluctuations of prices and of the currency. We have surely seen enough of these fluctuations, and sufficiently witnessed, if not experienced, their disastrous influence, to warn us against the fatal policy of yielding up the lessons of experience to the temptations of high prices and prosperous seasons. It is, indeed, one of the greatest which these fluctuations habitually produce among us, that we are but too successfully tempted, by the temporary allurement of high prices, to abandon all the maxims of wisdom and all the rules of sound economy, which have been imposed upon us by painful experience, in periods of depression and adversity. Let us, then, each one for the sake of his own interest, and all for the common welfare of South Carolina, solemnly and deliberately resolve, that we will never again, under any temptation, incur the just reproach which must attach to our character as planters, if we should be induced to rely upon distant communities for those essential supplies, which our own plantations are so capable of producing. And to the end that this high resolve may be more firmly adopted and perseveringly maintained, I shall endeavor to show, that it is the dictate, not less of an enlightened self-interest, than of an enlarged public spirit.

We are, then, to consider and decide upon the comparative cheapness and economy of producing ourselves on the one hand, and of purchasing from abroad on the other, the hogs, horses, mules, and other live stock, required for the use and consumption of our plantations, during an average series of years. A stranger to our wretched habits of economy would be startled at the mere propounding of such an inquiry. He could not comprehend the economy of importing from Kentucky, what our own soil and climate are so eminently adapted to produce. However plausible, it is most assuredly by a false economy, founded upon false reasoning. A man who will assume that our hogs and horses must be raised exclusively upon corn, and gravely sit down to calculate the cost of so

many bushels at seventy-five or even fifty cents a bushel, will certainly come to an erroneous conclusion. But those of us who systematically pursue the business of raising live stock, can testify that the quantity of corn necessary to raise hogs, horses or mules, is extremely inconsiderable. Oats, whether harvested for the work horses and mules, or used as pasturage for stock hogs and stock horses and mules, is an invaluable crop for a cotton planter. That which is used as pasturage, while it will cost only the labor of preparing the ground and seeding it, will keep all the stock in fine order, from the middle of summer until the opening of the pea fields, and these, which cost scarcely any labor, will keep them in like order, with very little aid from the corn crib, until December. From this time regular feeding will be required for about four months, and after that, very little will suffice till the oat pastures are again ready. In this view of the subject, I have omitted many useful auxiliaries, such as potatoes, pindars, peaches and apples, the two latter of which are often permitted to rot on the ground, though excellent food for hogs, and perhaps the least expensive of all. Nor have I embraced in it the artificial grasses, though I am quite sanguine from the experiment I now have in progress, that in most of the strong soils of the country, blue grass and herds grass will succeed very nearly as well as they do in Kentucky. Upon the whole, then, it is my deliberate opinion, founded upon my own experience and observation as a planter, that in South Carolina, and particularly the upper country districts, it would be true economy for the planters to raise their own stock, even if they could always buy Kentucky pork at three dollars a head. But let it be remembered that to accomplish this, they must devote themselves to it as an essential branch of their business. A regular system must be adopted and a competent person be charged with its execution; and overseers must be made to know, that it is as much their duty to superintend it, as the cultivation of the cotton crop; for hogs and horses can no more thrive without proper attention, than corn and cotton can grow without attention. And it is worthy of remark, that when hogs are fat or in a growing order, it requires not half so much to keep them in that condition, as it would require to sustain poor hogs and prevent them from growing poorer. It is, therefore, a most obvious rule of economy, never to permit stock hogs to sink below what we denominate a growing condition. The corn that will be required to keep them in that condition during four or five months in the year, will be less than that which would be required in extra feeding to prepare poor hogs for the slaughter pen; and at the same age, their weight will be fifty per cent. greater, and their flesh will be much more firm, than that of hogs brought up in poverty and suddenly fattened. I am now speaking the actual result of my own experience, and I have been astonished to perceive how little corn is required to prevent fat hogs from getting poor.

As an important part of the branch of economy we are now considering, every planter should keep as large a stock of neat cattle, and of sheep, as his pasturage and the offal of the plantation will support. To this extent, there is no description of stock so valuable in proportion to the expense of maintaining them. Their flesh is much cheaper than that of hogs, and besides supplying the table of the planter with an abundance of good beef, butter and mutton, the former will advantageously supply one half of the plantation rations of meat during the autumnal months; and the latter, all the wool required for clothing the negroes in winter. In addition to all this, it is the opinion of the most experienced planters, in which I fully concur, that where cattle are penned every night on grounds properly covered with litter, the manure they will make in the course of the year, will very nearly defray the expense of maintaining them.

I have thus attempted to show that it is the true interest of every planter to raise all the live stock required for his own use and for the use and consumption of his own plantation, though no one else should pursue the same policy.

I now propose to consider the subject in a still more interesting point of view. I propose to inquire what would be the effect of this system upon the general prosperity of the cotton planting states, assuming that it should be universally adopted. It is not extravagant to estimate the annual expense which a planter would incur in purchasing his supplies of stock, at one tenth of the net proceeds of his cotton crop, as exhibited on the books of his factor. Assuming, then, that the labor diverted from the production of cotton, in order to raise these supplies, would diminish the cotton crop in the same proportion, it would follow that each individual planter would derive as large a net income from his diminished cotton crop, as he would have derived from one tenth larger, if he purchased his stock, even supposing that the diminished cotton crop, brought no higher price than could have been obtained for the larger one. But here we realize the grand result of the proposed reform in our agricultural economy.

It is a well established principle of political economy, confirmed by the uniform experience of the cotton planting states, that when the supply of a commodity exceeds the effective demand, the price is diminished, not in proportion to the excess, but in a still greater proportion. If, then, we assume that the proposed reform would reduce the annual cotton crop from two millions of bales, to one million eight hundred thousand, and that the effective demand of the world would not exceed the latter number, it would clearly follow from the above stated principle that the smaller crop of one million eight hundred thousand bales, would yield a greater aggregate income than the larger crop of two millions of bales. In the habitual state of our cotton trade, with a constant tendency in the production to exceed the demand, such would always be the result of diminished production where no extraordinary causes existed to check consumption. It results from this reasoning that the planting states would realize from the universal adoption of the proposed reform, a clear aggregate saving of the sum annually expended in purchasing live stock; and that each individual planter, besides greatly increasing the comforts of his establishment, would add ten per cent. to his annual income. Entirely satisfied, as I am, of the soundness of this reasoning, and the justness of the conclusion to which it leads, I am aware that it is exposed to an apparent objection. It may be naturally asked, how it happens that the planters, a class of men sufficiently intelligent

to understand their own interest, should generally pursue a course so little calculated to promote it? A sufficient answer will be found to this question, in the force of established habits, the mistaken ambition which makes the point of honorable distinction consist in the number of cotton bales, and above all, the unfortunate habit so generally prevalent among planters, of neglecting their own business, and confiding it to the exclusive management of overseers. It is a duty which every planter owes, not only to himself, but to his country, as a matter of example, to give his personal superintendence to his business, and make himself master of all its details. He can scarcely deserve to own an estate, who from false pride or indolent self-indulgence, remains in voluntary ignorance of the various operations upon which its productiveness depends, and relies exclusively upon agents who are practically irresponsible, and in general grossly incompetent. Certain it is, that no general reform or improvement in our agricultural economy, will ever be made by overseers. Agents who are employed from year to year, who have no interest, in any permanent improvement, and who are generally actuated by the motives of a tenant at will, which prompt them to aim at a large cotton crop the present year, without any regard to the future, or to the subsidiary branches of a sound system of economy. Every planter who has attempted such reforms or improvements as I have suggested, can testify how utterly impossible it is to make overseers, generally, realize their importance, or bestow upon them sufficient attention to insure their successful execution. Let it, then, be regarded as the point of honor with every planter to attend personally to his plantation, and make himself master of every branch of its operations and economy. This is an indispensable preliminary step to all useful improvements in our agriculture, and is equally demanded by every consideration of private interest and public duty.

Another mischievous error in our planting economy, proceeding partly from the mistaken ambition of making a large count of cotton bales, and partly from the uncalculating habits acquired during high prices, is exhibited in the general carelessness with which cotton is picked out of the field and prepared for market. It has been fully demonstrated by experience that those planters who have their cotton properly handled, and sent to market free from the contamination of trash and stain, can habitually obtain in our own markets, one cent a pound more than can be obtained for cotton prepared in the usual way; and I can personally testify, as the result of my own experience, that the difference made in foreign markets is much greater. Now, I invite your serious attention to a few plain and obvious reflections on this subject. A diminution in price of one cent. a pound at the present market rates of cotton, is equal to ten per cent. discount upon the gross amount of the annual income of the planter, and a still larger per centage upon the amount of his net income. It follows, that by the careless operations of four months in gathering the crop, one tenth of its value is destroyed, and one tenth part of the labor of the whole year is absolutely nullified. The labor of one hundred hands is reduced in value to that of ninety, and five hundred bales of cotton are reduced to four hundred and fifty. Now I confidently put it to every practical planter, as a plain question of economy, what possible advantage there can be in carelessly picking out a cotton crop, that will compensate the planter for this sacrifice of fifty bales of cotton, the product of the whole annual labor of ten hands? Let it be admitted, and it is an extreme supposition, that hands will pick out one tenth more in the one mode than they will do in the other. Even on this hypothesis, one tenth of the labor of the whole year would be sacrificed for the sake of one tenth of the labor for four months, and to this sacrifice we must add that of the additional expenses of the horse power required to make the additional fifty bales of cotton. Does not the conclusion, then, irresistibly follow from these premises, that every planter should lay it down as a cardinal rule, in pitching his crop, to plant no more than he can pick out with proper care, giving due attention to the other interests of his plantation. This rule, like that relating to live stock, comes recommended by the twofold consideration, that it not only promotes the individual interest of each planter, but still more extensively, the general interest of the entire class. If it will cause a diminished quantity of cotton to be produced, it will cause the price of that diminished quantity to be proportionately increased, by its superior quality, and still further, the very circumstance of its diminished quantity.

It is not to be doubted, therefore, that the general adoption of the two plain and practical rules, so perfectly in the power of every planter, of raising his own supplies instead of buying them, and picking out and preparing his cotton with proper care and attention, would do more to promote the prosperity of the cotton planting states, than all the *morus multicaulis* speculations and political paper nostrums that ever deluded a people with visionary hopes, while they afflicted them with real disasters.

* * * * *

There is another reform in our agricultural economy, to which every planter in South Carolina is invited by the most persuasive considerations, public and private. It is to adopt and steadily pursue a system of permanent improvement, not only in the soil, but in the buildings and fixtures of his plantation, and to abandon the improvident policy hitherto generally pursued, of exhausting the soil in the too eager desire to realize a large present income, without any regard to the future. It is absolutely distressing to contemplate the memorials of this wretched policy exhibited in every part of the state—a policy which, while it denies to the present generation almost all the rational comforts which alone make wealth desirable, leaves to posterity an exhausted soil, ruinous mansions, and a barren inheritance.

Now, it would not be too strong an expression to say that every dollar judicially invested in the permanent improvement of his estate by a planter, would be worth more to his children than two dollars invested, as is usual, in the purchase of more negroes to cut down the forest and destroy the soil. We have reached a point in our agriculture, which imperiously demands a fundamental change in this respect. However the virgin soils of the south-west may palliate the folly of such a course, the alternative is distinctly presented to

us, of permanently improving our estates, or of deserting them. We cannot contend with the planters of Alabama and Mississippi, in a wild and destructive system, by which even they have sunk under embarrassment and ruin, with all their advantages of soil and climate. We can make up for our inferior soil and climate only by a superior system of husbandry. While they are exhausting their soil and preventing the natural increase of their slaves by a reckless system of pushing and driving, let us improve the fertility of the one, by resting and manuring it, and increase the number of the other, by moderate working, and by providing every thing necessary for their health and comfort. And I have no doubt that a South Carolina planter who shall limit his cotton crop to five bales to the hand, and rely mainly upon the natural increase of his negroes, will leave a larger estate to his children, at the end of ten or twenty years, than a south-western planter who follows the system generally pursued in that quarter, though he should make eight bales to the hand, and annually apply his surplus income to the purchase of land and negroes. Though they are really struggling for the benefit of their children, there is no class of men who do so little for posterity, and will leave so few monuments behind them, as the cotton planters of the south. What sort of an estimate must be placed upon wealth, and to what rational end can he desire it, who, with an income of ten or twenty thousand dollars a year, brings up a family of children imperfectly educated, in a log cabin, with scarcely the comforts of such a dwelling? A stranger travelling through our country could not be persuaded that it was inhabited by a race of wealthy, hospitable and enlightened planters, so few of the monuments and improvements that indicate a wealthy and prosperous community would meet his eye. And if, by one of those great political revolutions which overwhelmed the ancient Greeks and Romans, our race of conquerors, and our name only descended to posterity, what classic memorial, what substantial monument, would bear testimony that this "delightful region of the sun" had been once inhabited by a civilized and enlightened people, eminently distinguished for their industry, their wealth, and the freedom of their institutions?

In thus urging a more provident regard to the future in our general economy, it will be perceived that I have still kept in view the important object of diminishing the aggregate cotton crop of the country, by giving a more useful direction to a portion of the capital and labor devoted too exclusively to its production. It will be also perceived that I have made no disclosure or recommendation of any improvement by which large cotton crops may be made. I have intentionally abstained from any suggestion of this kind believing that every one may be safely left to his own impulses and his own resources on this point, and regarding over production as one of the greatest evils to which the cotton planting interest is exposed. Indeed, if I could now reveal a process by which our common soils could be made to produce two bales of cotton to the acre, I should have great doubt whether the revolution would be a blessing or a curse to that great interest. I am aware that as I have obtained some reputation for making large cotton crops, it may be supposed that I preach one doctrine and practice another. But such a supposition would do me injustice. With the largest cotton crop I ever made—that of 1839—I combined all the other branches of economy I have here recommended. I have now a surplus of 1500 bushels of corn made that year, hogs sufficient to supply my wants, that have been fat enough to slaughter since July, and very large stocks of cattle and of sheep, the latter of which supply all the wool required for the winter clothing of my negroes; and a stock of young horses and colts fully adequate to meet the exigencies of my plantation. After making due provision for all these objects, it is of course the true interest of every planter to make as large a cotton crop as he can without over-working his operatives. In doing this, however, he should never lose sight of the great object of improving the productive power of his estate, instead of exhausting it.

To this end, it should be his constant effort, by manuring and resting the soil and by superior cultivation, to produce a given result from the smallest possible number of acres. It is scarcely possible to overestimate the value of this rule in the actual condition of the old planting states. Every resource for making manure should, therefore, be improved to the uttermost, without begrudging the necessary labor and attention. No labor exerted on the plantation is half so well rewarded. Every description of stock should be regularly penned every night in yards constantly covered with straw, leaves or other litter. The quantity of manure that can be thus made in a year is quite inconceivable to those who have not made the experiment. Corn should be habitually planted in old land, of a quality least adapted to cotton, and every hill should be thoroughly manured, scrupulously avoiding the miserable economy too often witnessed, of losing one half its utility, to save the inconsiderable labor required to apply it properly. I can bear personal testimony that by these means the crop per acre can be invariably doubled on soils originally strong. My corn is principally produced on level lands that were considered to be exhausted when they came into my possession, and yet by thorough and careful manuring, I have reduced the number of acres cultivated in corn fully one half, making more certain and abundant crops than I did before with double the number of acres and more than double the labor of cultivation. All the manure not required for the corn crop, should be applied to the most exhausted of the cotton lands, and it should be made an invariable rule, both in regard to corn and cotton, to list in and bury all the stalks and vegetable matter found upon the soil. My experience justifies the belief that this process alone, if commenced before the soil is too far exhausted, will perpetuate if not improve the fertility of originally strong and level lands, though constantly cultivated in cotton. In fact vegetable matter, as it was the principal element in the original formation of soils, so it must be in their restoration and preservation. Nature beneficently provides it to our hands, but we too often destroy it as if it were a nuisance, while we vainly employ our speculations and direct our researches to find out some more scientific means of improvement. In proportion as the quantity of land required for cotton and corn is diminished by the means proposed, will that be increased

which is left fallow, and for small grain. These, after one year's rest in good soils, and always before they become covered with broom sedge, should be fallowed in the autumn, carefully turning in all the stubble and weeds, with two horse ploughs adapted to the purpose.

On the process of cultivation, one or two remarks may not be unappropriately made in this connexion. One of the most prominent obstacles, both to a system of good cultivation and to a system of permanent improvements, is the common practice of overplanting. It may be not unaptly denominated a system of *wear and tear*, in regard to land, negroes, horses and mules. As one of its inevitable consequences, a planter almost certainly finds himself, when the seasons are in any degree unfavorable, in that uncomfortable condition usually expressed by saying "he is desperately in the grass." No man deserves the name of planter who gets into this predicament, except in very extraordinary seasons, any more than he deserves the name of general who carelessly permits himself to be surprized and surrounded by an enemy. For though the one may work his way out of the grass, as the other may cut his way out of the toils of his adversary, yet it is the hard knocks and sweat of the laborers in the one case, and the valor and blood of the soldiers in the other, that imperfectly atone for the incompetency of the manager and of the commander. It is my confident belief that when even one half the crop is permitted to become grassy, the future cultivation of the whole will require double the labor that would have been otherwise necessary, and with all that, it will be impossible to make a full crop, especially of cotton. In our climate and soil in the upper country, the only means of avoiding an immense destruction of immature balls by the autumnal frosts, is to push the growth of the cotton from the beginning, by thinning and preparing it to mature as early as it can be safely done, and never permitting its growth to be delayed for a single day by want of working. For what is lost in this way can never be recovered; and I have no hesitation in saying that six acres of cotton to the hand, properly cultivated, will produce a greater result with one half the labor than ten acres to the hand, cultivated in the rough and imperfect manner but too common even in this state, and generally prevalent in some others. In adopting it as a rule, therefore, to plant no larger crop than can be cultivated in the most perfect manner, a planter will best consult every view of sound economy and even the predominant desire to make a large cotton crop.

In the cultivation of a crop I know no rule more important, and which is more generally violated, than that of *doing your work thoroughly well, cost what labor it may*. More labor is improfitably wasted and more crops injured by bad cultivation from neglecting this rule, than from any other cause. The last strokes of labor required to complete any operation are doubly, often ten times as valuable as those used in the previous stages of it; and yet these are the very stocks usually omitted; in an improvident haste to 'get over the crop,' as it is expressed. The very causes which generally tempt managers to slight the work—wet weather and grass, for example—are those which most imperiously demand the strict observance of the rule I have laid down.

One of the consequences of over-cropping and bad working which is most to be deprecated is the necessity they create, and apology they offer, for permanently injuring the soil by excessive ploughing, and what is still worse, ploughing in improper seasons. I believe that it may be truly said that in the upper country at least, double the quantity of ploughing is done in cultivating cotton, than can be justified by any sound theory. Every ploughing which turns up fresh soil to the burning rays of a summer sun must tend to exhaust its fertility. But it is more important to remark, that nothing which folly can inflict on the soil, will so certainly reduce it to a mere *caput mortuum*, as the murderous practice of ploughing it in wet weather. There is but one way for a planter to avoid these evils, and that is by so planting and so conducting his operations as to be habitually ahead with his work.

ON THE PRESERVATION OF WOOD-LAND—THE CULTIVATION OF THE LOCUST TREE, &c.

For the Farmers' Register.

Mr. Editor.—The value of many farms, in various parts of our country, has already been greatly impaired by the improvident destruction of nearly all the timber upon them. I can designate a number of farms in my own neighborhood, the value of which would be enhanced from one to three thousand dollars, by an abundant and convenient supply of timber for ordinary farm purposes. Upon some of them, otherwise extremely valuable, there is not sufficient timber to renew the decaying fences, much less to supply the ceaseless demands of the voracious fire-places. Our ancestors, in gratifying their immediate wants, seem to have acted upon the considerate principle of the enlightened British statesman in the House of Commons, who, in reply to the arguments of a brother member drawn from considerations of duty to posterity, indignantly exclaimed, "D—n posterity—what has posterity ever done for us?" I do not know, however, that *we* are more considerate than our fathers. To sacrifice the future for the present is the great infirmity of poor, frail, short-sighted man. Instead of improving our old fields, we still continue almost wantonly to destroy large bodies of valuable timber, regardless of posterity, and forgetting that while destruction is the work of a day, reparation may require the lapse of an age. The permanent value of our farms, in many cases, would unquestionably be enhanced by the preservation of our forests. Our wood-lands in old settled neighborhoods, and particularly in the vicinity of towns and villages, are becoming every year more and more valuable, and will soon be the most valuable portions of our estates. I have known the wood upon land in the vicinity of a town in the Valley of Virginia sold at $40 an acre, double the price the cleared land would itself have commanded. Under these circumstances, a few plain remarks with regard to the preservation of timber where it exists, and the re-production of it where it has been destroyed, may not be without utility to some of your readers.

In the first place, a sufficient body of timber to supply the wants of every farm should be appropriated exclusively to that purpose. This land

should, if possible, be fenced in, to prevent cattle from browsing upon and destroying the young and growing timber. It might, however, be kept as a hog range, and would be valuable for this purpose.

In cutting timber for fuel, grown and dead trees, not valuable for other purposes, ought invariably to be selected. Young timber should be sacred from the woodman's axe. He ought never to be permitted, as is too frequently the case, to range the woods at pleasure, and destroy the most valuable timber; young hickories for instance, because they make the best fuel. The choppers ought to be instructed to trim up their tree tops closely, by neglecting which, an immense quantity of wood is lost on almost every farm—to cut their stumps low—to spare the young timber as much as possible, not destroying a single tree unnecessarily.

If some of the improved stoves or air furnaces were used instead of fire-places, our houses would be infinitely more comfortable, while an immense expense would be saved in the destruction of timber, and in cutting and hauling wood. On many of our farms a team and two or three hands are employed almost constantly during the winter in procuring and cutting wood.

A great deal of timber and hard work might be saved by a more judicious system of enclosure, by abolishing all unnecessary cross fences, and laying off our farms as compactly as possible. Worm fences, those pests and abominations, ought to be universally proscribed, and straight post and rail fences of durable materials, or stone fences, substituted in their places. In cutting timber for rails, buildings, farming utensils, &c., it will be recollected that experience and science have both demonstrated, that *timber cut in the summer will far outlast that cut, according to the common practice, in the winter.* The lops of rail timber ought to be carefully trimmed up for fuel, and your cook will thank you for a few wagon loads of chips. "Gather up the fragments that nothing be lost," is a divine maxim, no where more applicable than to the diversified operations of the farmer.

Upon farms deficient in timber, and indeed upon all farms where it will flourish, I would most earnestly recommend the cultivation of the locust tree. I do not know how a few acres can be more profitably employed on most farms, than in growing this invaluable timber. In addition to your regular plantation, a great many trees can be grown along permanent fences, public roads, on rocky spots incapable of cultivation, and scattered about through your woods, where the timber has been cut down, or stands too thin. In this manner, and by the judicious and tasteful disposition of clumps of trees in particular situations, our farms would be vastly improved in beauty as well as increased in value. Exhausted fields may be redeemed from sterility and converted into valuable pastures by planting them thickly with locust trees. In our forest fields we generally find a patch of sweet green-sward about the locust trees. To cover your fields with the locust, you can set out the trees at such regular distances as you wish them to grow; if pretty thick, the timber will be taller and better; or you can plant, say 30 or 40 trees to the acre, and by cutting off their roots with a sharp coulter plough after they have grown a few years, your ground will soon be covered with a locust thicket. When your plantation is once established, you are sure of an endless succession of locust trees; for every tree you cut down will produce sufficient shoots for a dozen successors. By pursuing this plan, you can enclose your farm in a few years with a post and rail fence of locust, which will last from seventy to one hundred years, to say nothing of the large sums you might pocket from the sales of timber. What an immense expense you would thus save to yourself, your children, and your children's children!

Young locust trees can be raised in abundance from the seed, which at this season of the year, can easily be gathered in any quantities from old trees; the larger and more vigorous the better. The seed must be scalded in hot water to soften its hard envelope, or it will not vegetate for years. Plant at any time in the spring thickly in drills, say two feet apart; keep the weeds down the first year with the hoe or plough, and your labor is finished. You can transplant the second, third, fourth, or fifth year, or later at pleasure. The roots left in the ground in digging up the trees will secure you a permanent locust nursery. In planting out your trees leave the roots pretty long; trim the tops off, unless the tree is very small; set the trees firmly in the ground, as deep as they grew naturally, *and no deeper*, and leave them to themselves. You may set them out at any time from the fall of the leaf in autumn, to the bursting of the bud in spring. Trim your trees up if not planted closely, and they will have taller and better stems. Keep cattle out of your orchard until your trees are out of their reach. Follow these plain directions, which I have tried with great success upon a small scale, and in a few years you will have an abundant supply of the most valuable timber, which will add vastly to the value of your farm.

I wish I could persuade all your readers to promote the comfort and beauty of their homes by embellishing their farm-houses with ornamental trees and shrubbery. Plant locust trees, if nothing else. I intend, however, to ornament my yard, as far as may be practicable, with specimens of every tree to be found in our forests, to be procured from time to time as my convenience will permit. The example of the late Judge Buel in this, as in other respects, deserves the imitation of us all, and is full of encouragement. "Twenty years ago," says he, "at forty years of age, we commenced the cultivation of what was termed a barren, untameable common, not an acre of which had been cultivated, and on which a tree or shrub had never been planted by the hand of man. We have now growing in our court-yard, comprising about half an acre, and in the highway in front of it, fifty species of forest and ornamental trees, many of them forty and fifty feet high; more than fifty species of ornamental shrubs, not including the rose, besides a vast number of herbaceous, ornamental, and bulbous and flowering perennial plants—the greater number of which, in all their variety and hue of foliage, flowers and fruit, may be embraced in a single view from the piazza. Most of our fruits have been raised by us from the seed, or propagated by grafting; yet we can now enumerate more than two hundred kinds, including varieties, which we are in the habit of gathering annually from the trees, vines, &c., of our own planting."

With this instructive example before their eyes, if any of your readers fail *this spring* to plant out

orchards of apples, peach, pear, plum, cherry, damson, quince trees, &c., they deserve to be deprived of fruit for the remainder of their lives. From about a dozen trees of well-selected fruit, I had last year the greatest abundance of delicious apples from the 1st of June until the 1st of January. But my sheet is full. PLOUGH-BOY.

Rockbridge, Va., Feb. 1st, 1841.

HOGS.

From the Kentucky Farmer.

If Kentucky may be said to be *the* "breeding state," in reference to horses, mules and cattle, the distinction may perhaps be no less justly claimed in reference to swine. And if the *number* of varieties from which selections may be made, in view of making new crosses, and promoting and perpetuating increased improvements, be deemed a fortunate facility for affecting the object, it would seem that we are peculiarly favored. Of the names of different varieties, all claimed to be of "improved breed" and possessing peculiar excellencies, we remember, just now, the following: Berkshire, (black with a little white;) white Berkshires; Woburn, (sometimes called Bedford:) Bedford, (distinct from the Woburn;) Chinese; Neapolitan; Leicester, Lancashire; Irish grazier; Russian; Byfield: Thin-rind; and there may be others. And each variety has its sturdy advocates; and no doubt each has its peculiar excellence. But out on such a wide range, how is an inexperienced breeder to choose intelligibly? It is true we have the awards rendered at the fairs of the agricultural societies; we have reports of great weights attained at an early age; we have the positive assertions of A and B that this and that breed are *the* very best, without the least doubt; and we have the "fashionable taste" here in favor of certain breeds, as well as in reference to the breed and color of cattle. But after all, *we have not all the facts*, which would satisfactorily conduct the judgment to an intelligent decision and choice. In saying this, however, we do not mean that facts are wanting to prove the value of the various breeds. They do exist, but they are not made known. Neither do we doubt the sincerity of the advocates of the various breeds. Nor, for ourselves, can we permit the inference that, on this important subject, we have no "opinion of our own." We have an opinion, (mind, reader, we say an *opinion*—) but like certain politicains, we'll keep that to ourselves till it is wanted. It would be idle for us to state our opinion that this or that breed is the best, when we should instantly be met by the counter assertion of the advocates of twenty other breeds whose facts might prove to be as much in point as our own. We have no taste for engaging in a controversy in which we confess ourselves deficient in some of the leading facts by which its merits should be decisively determined.

But we are circuitously aiming at a point to which we meant to make a direct approach. We say then, the facts now before the public, in reference to the merits of various breeds of hogs, are not decisively satisfactory. We have seen the report of no experiment by which the matter has been indisputably settled; and hence the numerous advocates of various breeds. The reports of great weights attained at early age and of premiums given to individuals of various breeds, are not decisive of relative superiority; for we know that the animals have been kept, pampered in a manner impossible to be adopted in the general economy of farm management. If a pig, stuffed daily to bloating, with every description of nutritious food, shall out-weigh another at a given time, it does not conclusively prove, we imagine, that the breed of which he is an individual is a better one for farm-stock. But, at the same time, we confess, it by no means proves it a worse. Yet the test is not a fair one; and we propose a new mode of settling the difficulty Let some unprejudiced farmer who is not engaged in the "pig business," take any adequate number, say twenty, fifty or a hundred pigs of each of several of the vaunted breeds, of like age, and give them, in all respects, precisely the treatment and keep which are commonly bestowed upon swine. It is not, and cannot be, the custom here, to put stock hogs in pens and gorge them. We can't adopt, for general farm economy, the system of manufacturing pigs for show. We must raise pork for profit; and the breed most profitably under the system of economy which the circumstances of the country compel farmers generally to adopt is, unquestionably, the best breed—the assertions of pig dealers to the contrary notwithstanding. Let this mode of keeping be adopted, and the result reported to the public; and then we shall know more about the subject. It is out of the question to talk of betting upon one or two individuals, kept in a most extravagant manner that will cost more than the pork is worth. But we shall be told that no breeders can spare a sufficient number for such an experiment—the demand for pigs is too great and pressing; and besides they are too valuable to be slaughtered—they must be kept for breeders. It is to be hoped the day will yet arrive, when, in reference to improved cattle as well as hogs, some of the vaunted breeds will be devoted to the legitimate objects of making beef and pork. We shall then, at least, have some accurate means of testing relative merits. What we have said is not to be taken in an unfavorable light towards any of the improved breeds. We confess the superiority of many of them, from the evidence we have; but we want more conclusive evidence. Let those, therefore, who advocate this or that breed, join in the purposed experiment. If they are so confident as they profess, they have nothing to fear; and even if they should be beaten, their own interest requires them to know it. It may to some, be a very profitable business to mislead (innocently) others, but it is extreme folly to deceive themselves. Every intelligent friend of genuine improvement should be willing even to have his own favorite stock beaten, if done fairly; and he ought to rejoice in the result. The sensible breeder, finding himself beaten, will with equal good nature and sound judgment, procure the better and put away his own. After Eclipse beat Henry, Mr. Johnson wisely bought the former.

We published (in vol. 3. p. 142) an experiment of Benj. Gray, esq. of Woodford, with the half blood Thin-rind. He treated them in all respects as ordinary stock and reported the result to the public. It was a highly satisfactory one, and

spoke well for this breed, so much ridiculed and derided by the breeders of other varieties. We do not pretend to say that other breeds would not turn out as well or better; but the same kind of proof has not been furnished.

We presume now, if there is no herd of thorough bred swine to report upon, that at least numbers of part bloods have been slaughtered this fall. Let us hear from them. Come now, ye advocates of Berkshires and Woburns and other breeds—report your ordinary keep with your vaunted breeds, and give us your arguments in avoirdupois. Show us a lot of half bloods that, kept in the manner of Mr. Gray's despised Thin-rind—that is, in the ordinary manner of raising stock hogs—will make more net pork. Now we doubt not, some of the "eminent breeders" will think we talk very like a fool, in asking them to show facts relating to *their* stock, against those referring to such an *unfashionable* beed as the Thin rind; and some of them will even affect to be a little angry with us. But we can tell them an old proverb, that he who loses his temper loses his argument. So they need not be offended with us; we mean no harm to any of them, but good to all; and if any grow ill tempered, we shall only laugh at them. Undoubtedly many part bloods have been slaughtered this fall—let's have their keep and weights. T. B. S.

From the Kentucky Farmer.

MEASURING CORN IN BULK,

Equal bulks of corn in the ear, grown on different soils yield different products of shelled grain.

The following communication is made public because it presents considerations of some interest to the farming community. Although it is believed by many intelligent farmers that a bulk of corn in the ear yields more than half its measure in shelled grain, the general practice adopts the standard used in Virginia and South Carolina; that is, a bushel of ears shells out half a bushel of grain. The idea that equal bulks of corn in the ear, grown on different soils, yield different products of shelled grain, is new to us. We were aware that corn grown on uplands, is heavier than that grown in bottoms; and we believe that grain grown in high latitudes is harder and heavier than the product of warmer climes. There is also a difference of product in shelled corn from equal bulks of ears, owing to the relative size of the ears—the smaller ear yielding more shelled grain.

As to the influence of various soils in deepening the grains on the cob and enlarging the diameter of the cob, we have no information. These subjects ought, however, to be investigated. We are generally too deficient in accurate knowledge of the facts which concern many branches of rural economics. Experiments should be instituted and reported.

Mr. Ruffin no doubt could furnish interesting facts, through his invaluable Farmers' Register, on the subject indicated, as he has already done on so many others of deep importance.

T. B. S.

Llangollen, Nov. 13, 1840.

To T. B. Stevenson, esq.—Dear Sir:—In the "Kentucky Farmer" of 7th inst. there is published a rule for measuring bulks of corn by Mr. Murray, esq. of South Carolina. It is very simple and of easy application.

But although in Virginia and S. Carolina the assumption that it takes two bushels of corn in the ears to make one of shelled corn, is admitted and acted on in their measurement, *here*, in Kentucky, *that assumption is not admitted.* The proportion of shelled corn is certainly greater than one half of the bulk of ears. What is the proportion here? I mean that (if any) which is established by common consent of the people. Is there any? If there is not, there should be; because sales of corn in the ear are very common, and there should be an uniform mode of adjusting the proportion. In different neighborhoods I have heard that different practices in this matter prevail. It is however, true, that any fixed proportion (although such is necessary) can only be an approximation to the truth, as the different varieties of corn shell out very different proportions of grain. The Baden, for instance, in this country, shells out eleven quarts to the half bushel of ears, equal to eleven-sixteenths of the bulk of corn; while some varieties shell out only nine-sixteenths of grain here in Kentuckv. If in Virginia and South Carolina the same varieties should only shell out eight-sixteenths or, one-half that here shell out eleven-sixteenths what can be the cause of the difference? Certainly not difference in *fertility of the soil* alone; for some lands on the Dragon swamp, Matapony, Chickahominy, &c., in Virginia, are as rich as our best lands here, and will produce as great a bulk of unshelled corn to the acre. Those rich lands in lower Virginia are differently constituted from ours. Here, we have more alumine and lime; there, more sand and as much vegetable matter. Is there in clay and lime, a tendency to produce greater depth of grains in Indian corn, and in sand to increase the cob or husk, on which the grains grow? Do the *marled* lands of lower Virginia produce a greater proportion of shelled corn than sandy lands, which, *unmarled*, produce an equal bulk of ears? Do the clayey lands in Virginia shell out more than the sandy lands producing the same bulk of ears? If so, obvious means of increasing the product are indicated.

You correspond, I believe, with Mr. Ruffin. He, I presume, through his agricultural friends, could obtain information on these points.

A bushel measure is rather too small for our Kentucky crops of corn, especially in such years as this when our Baden corn is yielding from fourteen to sixteen barrels to the acre. This variety, notwithstanding its great yield, is unpopular on several accounts. The ears, being not large, there is *more* shucking; and this operation is harder to perform than in the ordinary varieties, as the shucks adhere with greater tenacity to the cob; and then it takes so many ears to make a barrel or to feed a horse. This last objection will soon be obviated by the soil and climate of Kentucky. The ears are getting larger in every successive crop.

If we were to assume half the bulk of corn to be the quantity of shelled corn, as they do in Virginia, the following rule for the measurement is, an approximation sufficiently near for practical purposes.

Find the cubic contents of the bulk of ears in feet. Multiply them by 8 and cut off the two right-hand figures and you have the barrels of shelled corn. Thus:

12 long.
11 wide.

132
6 deep.

792 cubic feet.
8

62,36 equal 63 bushels of shelled corn.

Yours, very truly,
JOHN LEWIS.

[We regret that the calls so courteously made above upon our information must be unavailing. We only know from former observations and trials, (made more by accident than design, and not worthy to be named as experiments,) that the proportion of grain to a barrel measure of ears, even of the same kind of corn, was variable, and often fell below half the measure of ears. It seems reasonable that corn produced in great perfection, or on the best soils and with the best seasons, should have more grain in proportion to the cob, than under reverse circumstances. We shall be glad to obtain facts and opinions on this subject from any of our better informed readers.—ED. FARMERS' REGISTER.

VARIETY AND EXTENT OF VEGETABLE LIFE.

From the Dr. Roget's Bridgewater Treatise on Animal and Vegetable Physiology.

If we review every region of the globe, from the scorching sands of the equator to the icy realms of the poles, or from the lofty mountain summits to the dark abysses of the deep; if we penetrate into the shades of the forest, or into the caverns and secret recesses of the earth; nay, if we take up the minutest portion of stagnant water, we still meet with life in some new and unexpected form, yet ever adapted to the circumstances of its situation. The vegetable world is no less prolific in wonders than the animal. Here also, we are lost in admiration at the never-ending variety of forms successively displayed to view in the innumerable species which compose this kingdom of nature, and at the energy of that vegetative power which, amidst such great differences of situation, sustains the modified life of each individual plant, and which continues its species in endless perpetuity. It is well known that, in all places where vegetation has been established, the germs are so intermingled with the soil, that whenever the earth is turned up, even from considerable depths, and exposed to the air, plants are soon observed to spring, as if they had been recently sown, in consequence of the germination of seeds which had remained latent and inactive during the lapse of perhaps many centuries. Islands formed by coral reefs, which have risen above the level of the sea, become, in a short time, covered with verdure. From the materials, of the most sterile rock, and even from the yet recent cinders and lava of the volcano, nature prepares the way for vegetable existence. The slightest crevice or inequality is sufficient to arrest the invisible germs that are always floating in the air, and affords the means of sustenance to diminutive races of lichens and mosses. These soon overspread the surface, and are followed, in the course of a few years, by successive tribes of plants of gradually increasing size and strength; till at length the island, or other favored spot, is converted into a natural and luxuriant garden, of which the productions, rising from grasses to shrubs and trees, present all the varieties of the fertile meadow, the tangled thicket, and the widely-spreading forest. Even in the desert plains of the torrid zone, the eye of the traveller is often refreshed by the appearance of a few hardy plants, which find sufficient materials for their growth in these arid regions; and in the realms of perpetual snow which surround the poles, the navigator is occasionally startled at the prospect of fields of a scarlet hue, the result of a wide expanse of microscopic vegetation.

From the American Farmer.

ADDRESS,

Delivered before the Queen Anne's County Agricultural Society, at its annual meeting, in July last, by WM. CARMICHAEL, ESQ.

At our last meeting I was requested to deliver an address, and I propose to submit some subjects, which I deem worthy of your consideration.

The object of this association is to advance agriculture and to improve our lands. To that end it would be desirable to ascertain the original fertility of our soil, but on this subject we have but little information. The first settlers were too much occupied by their immediate wants and personal comfort to leave memorials of the quality of the soil in its early occupation; and tradition upon this, as upon all other subjects, is very uncertain. Some reasonable deductions may be made from its products, of which, information may be derived from the legislation of the state, and the records of our county police. We learn from these, that the first crop cultivated as an object of merchandise, was tobacco, (equally pernicious to the soil, and to the human constitution,) which continued the staple crop till the revolutionary war; a period of more than one hundred years. The grain grown in our infant settlements was for domestic consumption. Fresh lands grow the finest tobacco, and they were gradually cleared with a view to this crop, and cultivated till they were incapable of profitable production. New clearings were then made for this object, and there are perhaps but few of our arable lands which have not undergone this scourging cultivation. When none remained to be cleared, the planters, of necessity, resorted to the lands previously exhausted, to which they applied the manure collected on the farm. As population increased and trade expanded, bread-stuffs came into demand, and lands which would no longer produce tobacco, were appropriated to the growth of grain under the three-field system; under which

rotation of crops, one field was in wheat, another in Indian corn, and the third a common pasture for horses, cattle, sheep and hogs, till ploughed for the next crop. Some more provident farmers, after the wheat was gathered and secured, removed their stock to the stubble field, that the lands intended next year for corn, should have the benefit of a growth of grass in the fall; but generally, when the fields had not a crop of grain, the inclosures were neglected, and the stock roamed at large. Old habits and the facility of the system, have induced many to continue this course of husbandry, and they are but little incommoded by grass in their cultivation, or burdened with gathering heavy crops of grain. In early life I heard a farmer say, that a good growth of grass, on a field anterior to cultivation, was as beneficial as a light dressing of manure. I did not then, but now understand the correctness of the opinion. Putrescent manures impart immediate fertility, but its durable effects, I apprehend, result from the production of grass. It was formerly thought that the greatest advantage from this manure was to plough it down as soon as spread; now it is believed better to keep it near the surface. If this opinion be correct, it must result from the combination with the atmosphere. Putrescent manures act well on a sandy soil, but are lost after two or three grain crops. I have heard it said that they sink. In a stiff clay they are more lasting, but their more permanent effect is on a friable soil, which I have attributed to the superior production of indigenous or artificial grasses. I have some stiff white oak land, though for the most part the soil of my farm is friable, and my experience is that putrescent manures are more lasting on the latter. If this theory be true, that through the agency of grasses the soil derives permanent improvement, it is a matter of deep interest to farmers who hold stiff or sandy lands to seek the means of their production. Experience I deem the best instruction. Some of Mr. Hollyday's lands in Talbot, are the stiffest clay I have ever seen. Formerly after the wheat crop, June grass succeeded, but since his application of marl, with which his estate abounds, I have seen his fields covered with white clover. Two years ago in an excursion I made to the north, I learnt from a source in which I had confidence, that the newly cleared lands on the coast of Jersey, which are sandy in the extreme, after being dressed with marl, produce white clover. In some agricultural paper which I have lately read, I have seen it stated that some of the most fertile lands in Belgium were once blowing sands, which have been reclaimed by the application of lime with other manures. On some of my wood-lands, where the soil is light and poor I have strewed marl, and find they produce white clover, and I am now clearing a part of them of underwood for a sheep range. I have a general knowledge of the lands of this county, and believe there are but few which could not be brought to a state of fertility with profit by our own internal resources. Marl has been discovered in many districts, and I entertain no doubt that a diligent search would disclose much more. Upon our rivers and creeks marsh mud has been used with great effect, and I have understood from fresh branches, it has been found of great utility. Marl is generally found in our low grounds; raising and carrying it out is attended with no small expense, but its value its great. Mr. Ruffin holds it to be indestructible, and if putrescent manures or vegetable matter which is necessary to its beneficial action be exhausted by hard and continued cultivation, that the marl continues in the soil and may be brought into action by application of putrescent manures, or the gradual accretion of vegetable matter. The soil of the Elk-horn Paradise in Kentucky is supposed to be inferior to none in the United States. It is there the finest hemp is grown and the finest pastures abound, and where Durham cows sell at from $500 to $1,000. The land is highly calcareous, and I have lately seen it stated that if it be exhausted by continued and severe cultivation, and suffered to rest, it soon recovers by the accretion of vegetable matter. In proof of the durability of marl, I will state a fact within my own knowledge. Mr. Edward DeCourcy of this county, late in life discovered a marl bank on his estate, which he determined to work. He drew out a few loads, but falling into bad health, the scheme was abandoned. This was twenty years ago; the spot is near the road leading to the family mansion, and the effect is unimpaired by time, and manifests itself on every crop. Marl is generally estimated in value by the quantity of shell it contains. This is not invariably a true test. When Professor Ducatel passed through this county, on his geological survey, I had two marl pits open, one blue and other yellow; he pronounced the yellow the best, as it contained the largest quantity of shell; I found upon using both, the greatest product from the blue; this I communicated by a paper in the Farmers' Register, and my opinion has been supported by the Hon. Dixon H. Lewis, of the House of Representatives, a gentleman of distinguished worth and talents. He states that the effect of blue marl on a cotton crop in Alabama, was greater than stable manure. Mr. Ruffin supposes that the color arises from a combination of vegetable matter. If he be right, it is a fortunate combination, as it will relieve the necessity of applying putrescent manures with marl, to a soil where there is no vegetable matter. I cannot pass Mr. Ruffin by without a just tribute. If Dean Swift's apothegm be true, "that he who causes two ears of corn, or two blades of grass, to grow where but one grew before, would deserve better of mankind, and do more essential service to his country, than the whole race of politicians taken together," then the claims of our politicians must wither and fade. Dean Swift lived not in the days of our Washington, Henry, and Jay, men illustrious for their virtues, and distinguished for their devotion and services to their country, at a period when patriotism was attended with peril. It is no uncommon error to form opinions from our immediate circle of observation. Dean Swift had been much about the British court, he had witnessed the daring and reckless ambition of the Duke of Marlborough, the heartless blandishments of the wily and accomplished St. John, and the dark and gloomy jealousy of the Earl of Oxford. The intrigues of the Dutchess of Marlborough, the more subtle artifices of Mrs. Masham, were not calculated to inspire respect for female politicians. Without drawing comparisons between men engaged in different pursuits, in my opinion, in agricultural science, Mr. Ruffin stands unrivalled in our country. His 'Essay on Calcareous Manures' will remain a standard work, and his

writings in the Farmers' Register, are marked with sound sense and judicious observation.

Mr. John S. Skinner has again become the Editor of the American Farmer. I have taken it for the last year, and find it to contain many valuable papers on agriculture, horticulture and stock, and perhaps on the production of silk, seasoned with a little cookery. I think it claims the patronage of farmers, planters, graziers, and gentlemen of the turf. The age of speculative philosophy has passed by. The subtle theories of Hume and the dark oracles of Bolingbroke and Shaftsbury are but little known to the present generation; the perilous principles of Voltaire, Helvetius and Condorcet, were fully tested by Frenchmen in their terrific revolution. They converted civilized men into hordes of savages thirsting for each other's blood. Science has now taken a new and a better direction. Practical philosophy has become the ruling spirit. Agriculture is now esteemed among the liberal arts, and men of a high order of talents have enlisted in her service, of whom Sir Humphrey Davy, Sir John Sinclair, and the Count Chaptal are among the most distinguished. I have sometimes thought it strange that intelligent men, who on other subjects seek information from books and papers, on agriculture are satisfied with their own and their neighborhood experience. Our country, in common with the Eastern Shore, has suffered by the emigration of our citizens, and the transportation of the black population; we have not now sufficient labor for the cultivation of our lands. Some years ago the tide of adventure set to the south-west, and many were swept into the vortex. But few succeeded, and some returned with ruined fortunes and broken constitutions, and had cause to deplore that they had abandoned the home of their fathers in pursuit of sudden wealth. That large fortunes have been acquired in the new states by fortunate speculation, I readily admit; but for the purpose of agriculture, I think an exhausted farm might be purchased and improved to more profit than a new settlement made in the new states. Our domestic sources of improvement are abundant, and our facilities for market rarely surpassed. Our soil is equally adapted to wheat and Indian corn; all vegetables and fruits (with the exception of those of the tropics) which grow in all parts of the United States flourish here. Apples, pears, peaches and melons attain their highest perfection, and the Irish and sweet potato find a genial soil. Navigable rivers and navigable creeks run into every district; we stand in no need of turnpikes, canals or rail-roads, which are serious drawbacks to agriculture. That our impoverished lands can be rapidly improved we have abundant proof. The farm of Dr. Turpin, which adjoins this town, when purchased by the late Mr. Turpin was greatly exhausted. By his prudence and good judgment it soon became valuable, and I am pleased to see it continue to improve in the hands of his son. I have lands which I had ceased to cultivate, deeming the profits not equal to the expenses, which by a dressing of marl and a crop of clover are now in a state of profitable production; and I do not think I make an extravagant estimate when I say that a farm where an accessible bank of blue marl is discovered has added to its value fifty per cent.

The devastating wars prosecuted by the powers of Europe, for more than thirty years created heavy demands for our bread-stuffs, and during that period wheat ranged from 150 to 200 cents per bushel. Since the general peace there has been a great decline in the price and a diminution in the products; for the latter, a variety of causes has been assigned, some have supposed the cooling of the fires in the centre of the earth; others that there is an occult native element in the soil necessary to its production which wears out by cultivation, which no means can restore. I have supposed the failure is to be found in more obvious cause—the progressive impoverishment of our soil, the inauspicious seasons, and the Hessian fly. This pernicious insect was unknown to our country till about forty years ago. It appeared first to the north, and some supposed it was brought over by the Germans, (in their provender) who our old enemy George the 3rd called to his aid to enforce his royal authority. This seems to be an error, as there is no such insect known in Germany. Perhaps, like many other insects, it is native to the country, and, like the tobacco worm and cotton fly, multiplies as cultivation advances. It seems to be a permanent evil fastened upon us, and we can only hope to lessen its mischiefs. Since I have been absolved from the weighty matters of the law, I have sought for information upon the habits and operations of this insect, to which I now add my own observation and reflection. It seems agreed that there are regular flights of the Hessian, fly in the fall and spring, dependent, as to time, upon the state of the weather. I believe that it is the natural history of the winged insects, that they lay their eggs upon the leaves of trees or plants, and I have supposed that the Hessian fly, lays upon the blade of the wheat, and after the egg is hatched the maggot by instinct seeks the folds of the wheat where it is found. Animals and birds seek places of safety for their young, and the ties of nature are not dissolved till they can take care of themselves; but it would be placing the Hessian fly in point of sagacity before other insects of the same class, to suppose it sought the folds of wheat as a safe deposit for its eggs. My theory is, and I shall refer to some facts to support it, that if the egg is hatched on the blade of the wheat in its young and tender state, that its soft and smooth surface enables it to make its way and penetrate the folds of the wheat; but if the blade has some growth it becomes comparatively rough, and the maggot finds the obstruction too great for its strength and perishes. It rarely happens that wheat sown after the weather becomes cool is injured by the fall fly. Cool weather paralizes stronger insects, as house and wood flies and musquitoes. If wheat be sown in the fall soon after the fly is disarmed by the weather, in well improved lands, it will take good root by winter, and in the spring it will get such a growth that it will resist the fly after it is hatched, unless there be a very early burst of warm weather. You may esteem my views visionary, I do not advance them with great confidence, but they are not the result of random speculation. In 1838 I sowed two fields in wheat adjoining each other, one in October and the other in November; the soil for the most part was the same, both had been marled and otherwise improved and nearly equal in size. The field sown in October took good root before winter and grew off well in the spring; the field sown in November came up well, but was checked by the early frost,

and though its appearance in the spring indicated that it had survived the winter frost, it was feeble when compared to the other. It was taken by the spring fly, and I did not get more than half the crop reaped from the other. Last year I prepared a lot for grass. It had been highly improved by marl and putrescent manures. I desired to show the grass early, and at the same time to obtain a crop of wheat from it; the wheat was sown on the 22nd of September, and grass seeded on it. The wheat came up quickly and made a beautiful appearance, but was attacked by the fly in its early vegetation. This spring from its appearance, I entertained the hope that I should get some crop, but I did not gather the seed. I commenced my general sowing on the 7th of October and finished on the 24th. Some of the wheat last sown was a little damaged by the fly, but not materially. A gentleman whose farm adjoins mine commenced sowing his crop the 1st of October, and I understand his early sown wheat has been much injured. From these circumstances I have come to the conclusion that the best chance to escape injury from the fly is to sow after the state of the weather affords good reason to believe that the fall fly has been checked, and then to sow as quick as possible, that the wheat may obtain such root as will give vigorous growth in the spring before the fly comes out. I am aware that my notions may seem in contradiction to the experience of 1836 and 1817, when the failure in the crop was general; some gentlemen now present may recollect the early burst of warm weather in 1836. In 1817 we had summer days in March, which is impressed on my mind from this circumstance: Mr. Monroe was inaugurated president on the 4th, and some gentlemen at Washington were speaking of the splendor of the scene in the presence of the Portuguese minister, when he remarked that the brilliancy had been increased by borrowing a day from Brazil. This remark I learned from report. I did not attend the inauguration, and I take this method to say that I lament the increasing inclination among the American people for public shows and spectacles; they divert our citizens from the sober and solid pursuits of business. It is there the young and unwary are sometimes seduced into schemes of desperate and profligate ambition, by the master spirits who circulate through the country. History records that the declining days of the Roman republic, upon which the throne of the Cæsars was erected, was attended by banquets and revels, and marked by the exhibition of rhretoricians and gladiators.

Among the important inventions in agricultural machinery, Mr. Hussey's reaper may be justly esteemed. His first invention has for two years been in successful operation on the farm of Mr. Wm. DeCourcy, and I understand other gentlemen of the county have used them. I purchased one upon a new construction, which I preferred on account of the greater simplicity of its works. It broke, in the second day's cutting, in an important though not a costly part. I attempted to have it repaired by the agency of a blacksmith, but was not successful. Mr. Hussey came to my house near the close of harvest to put it in order; it did excellent work for part of two days, and for three days in my oat harvest. It saves wheat better than the most expert cradlers or hooksmen, and in heavy wheat I think it will do the work of eight cradlers. An advantage not the least in my estimation is, that it relieves men from heavy and exhausting work, which, in very hot weather, often produces disease and sometimes death.

Indian corn is the valuable crop of our country, not because our soil is unfavorable to the production of wheat, as some persons who are but little acquainted with its qualities have erroneously supposed, but on account of the properties of the two crops and circumstances connected with them. Wheat has many enemies to contend with: Hessian fly, severe frost, rust and scab, and storms in its maturation. Indian corn is a hardy plant; it is sometimes injured by the cut worm, the ant and the chinch bug, but lands which are in a condition to produce 20 bushels of wheat to the acre in a good season rarely fail to yield forty bushels of corn, if judiciously cultivated. We have months then to gather the corn crop. If wheat be not secured soon after it arrives at maturity it is lost. A large extent of country in the United States produces excellent wheat, and when a full crop is made, the price is generally depressed. Indian corn is a precarious crop, further north than Jersey and further south than North Carolina. They do not grow a sufficiency for home consumption; within these limits the eastern states get and must continue to receive their supplies. I understand under the high prices of 1838 and '39, corn was shipped from New Orleans to New York; but when corn is from fifty to sixty cents per bushel, I do not apprehend rivalry from that quarter. The cost of transportation is too heavy, and corn is liable to be injured in the hold of a vessel, particularly in passing through a hot southern climate. In the present year there has been a great fall in the price. The full crop of last year may have had its effect, but I consider the great cause is to be found in the extravagant and pernicious spirit of internal improvement. It has been ascertained that a certain number of the states to aid these companies have issued bonds and certificates to the amount of two hundred millions of dollars, and many of the banks by purchase or pledge have been dealing largely in these securities. The money paid out by them to the internal improvement companies has been abstracted from the ordinary channels of trade. This has led to embarrassment and derangement, and its kindred evils, low prices and a spurious currency.

I have submitted for your consideration matters of common interest to the cultivators of our soil; you may deem many of my notions visionary. If they shall excite a spirit of inquiry I shall be content. By tracing the errors of others we sometimes obtain just views and arrive at true conclusions.

WM. CARMICHAEL.

ASPARAGUS.

From the Southern Agriculturist.

The name of this plant is of Greek origin, signifying a young shoot before it unfolds its leaves. It is evidently a native of this country, being found wild in Essex and Lincolnshire. It is also found on the borders of the river Euphrates, in Asia, where it grows to a very large size.

Asparagus is said to promote appetite, but is not considered to afford much nourishment, and is

comparatively a vegetable of luxury. It occupies a large proportion of a gentleman's garden, and is seldom seen in that of the cottager. The young shoots are boiled a few minutes, until they become soft; they are principally served to table on a toast with melted butter; seasoned, they also make an excellent soup.

This vegetable is cultivated very extensively for the London markets; and it must appear almost incredible to those who have not witnessed the loads of this article daily heaped on the green stalls of the metropolis for the space of three months, that forty acres are under asparagus in the neighborhood of London at one time. Wilmott, a great grower, at Deptford, has had eighty acres entirely under this crop.

Until towards the end of the seventeenth century, a large quantity of remarkably fine asparagus was exported from Holland, the deep, rich, moist soil of that country being genial to its growth.

Asparagus is propagated only by seed, which, as well as one and two or three-year old plants, may be purchased of the nurserymen or seedsmen; when a new plantation is formed, the latter practice is generally adopted in order to save time.

There are three varieties of the asparagus named in the seedsmen's catalogue, but there is a great similarity between them, and I doubt if these supposed varieties were cultivated in the same soil and atmosphere, whether there would be found any difference between them, except, perhaps, in the color. The following is a description of them:—

1. Battersea is famed for producing fine asparagus, the heads being large, full, and close, and the tops tinted with a reddish green color; this is the sort generally cultivated by market gardeners.

2. The Gravesend asparagus is more green topped, and not generally so plump and close, but is reckoned better flavored. Both varieties are held in great estimation.

3. The Giant asparagus is greatly extolled by the London seedsmen, on account of its size; but the author considers the secret to lie in the quality of the soil, for occasionally buds of immense thickness are produced in common beds; and in the Gardener's Magazine there is an account of sixty buds having been cut near Leeds, in Yorkshire, which weighed nearly seven pounds.

Culture.—The middle of March, [*February*,] or thereabouts, if the weather is suitable, will be found a good time to sow the seed in quantity, according to the number of plants required for a small garden. A pound of seed will produce a requisite number of plants.

The seeds are generally sown broadcast on a four-foot bed, but by far the better way is to sow it thinly in drills about two inches deep and fifteen inches from row to row. It should be slightly trodden in, and the bed made smooth with the rake; the ground must be kept as free of weeds as possible, and stirred with the hoe two or three times during the summer. If the soil is not very rich, some good rotten dung must be dug in before sowing the seed, as strong one-year's plants are the best for transplanting. About the end of the following October some stable litter should be spread over the ground to protect the young roots from the frost.

The best ground for asparagus is a light, rich, sandy loam. The soil should not be less than two and a half feet deep. Before planting, it should always be trenched to the depth of two feet, and plenty of dung buried at the bottom, as no more can be applied there after the beds are planted. The ground can be scarcely be too well manured: for, although the plants naturally grow in a poor, sandy soil, it is found that the sweetness and tenderness of the shoots depend very much on the rapidity of the growth, which can only be promoted by the richness of the soil.

The ground being well trenched, manured, and levelled, the quarter must now be divided into beds four feet wide, with two feet alleys, as being the most convenient for cutting the shoots and weeding, &c. The work should all be done in fine weather, as the ground can be more easily worked, and the planting better performed, than if the ground is wet and cloggy. It is also a good plan to prepare and trench the ground a month or six weeks before hand. After the beds are marked out, and before the planting commences, a layer of rotten dung should be spread over the beds, and regularly dug in with the spade, taking care to reject all the stones which appear, as they are hurtful to the plants, and occasion inconvenience in cutting the buds.

The beds being prepared, and a strong stake driven in to the depth of two or three feet at each corner, about the middle of March, [*any time during winter, but if possible it should not be delayed later than February, though they will succeed even as late as March,*] if the weather is dry commence the planting. Take up the plants carefully with a fork from the seed-bed, and expose them to the air as short a time as possible; and, at the time of planting, place them in a covered basket, with a little sifted earth mixed with them.

The distance at which they are commonly planted is nine inches in the row, and one foot between the rows; so that, if the piece of ground to be planted is perfectly level, and the rows quite straight, every fourth row can be left to form the alley. The crowns of the plants are generally covered two inches with mould.

The method of planting is as follows:—Stretch a line lengthwise along the bed, nine inches from the edge, and with a spade cut out a small trench about six inches deep, turning the displaced earth to the other side of the trench, on the bed; and having the plants ready, set a row along the trench, nine inches apart, with the crown of the roots two inches below the surface, drawing a little earth upon them, just to fix them as placed. Having finished planting the row, cover them directly with the earth taken from the trench, raking it back regularly an equal depth over the crown of the plants. Proceed then to open another trench, a foot from the first; plant it as above; and in the same manner plant three or four rows to each bed. Then lightly raking the beds lengthwise, draw off any stones or hard clods, and dress the surface neatly and evenly. Let the edges be lined out in exact order, allowing two feet to each alley. If the weather at the time of planting is very dry, water them occasionally, till the plants are established.

An asparagus quarter should not contain less than a rod of ground, as it often requires that

quantity to furnish a single good dish. For a large family, about twelve or six een rods are generally kept in a productive state.

Nothing further will be required during the summer, than to keep the beds perfectly clear from the weeds; and the following winter to cover them with some rotten manure, to preserve the crowns from the frost; if, in the spring, the earth is found to have settled in any part, which in new-made beds is often the case, the deficiency must be made up with more mould.

The crop is permitted the two first years, and a great portion of the third, to run up to stalks, the beds being kept free from weeds, and the surface stirred. It is a common practice to sow onions, lettuces, or radishes upon the beds; but the author considers this practice injurious to the asparagus, especially after the first three years, as it must necessarily rob the ground of a large portion of its nourishment.

If very large heads of asparagus are required, they may be produced by planting them twelve or fourteen inches apart in the rows, and fifteen or eighteen inches between the rows. The ground must also be very rich and highly manured. The author considers this to be the method by which the giant asparagus is produced; as in the course of his practice, by pursuing the same plan, he has met with the same results.

After the beds are arrived at maturity, which is generally the third year after they are planted, they will require the following systematic mode of treatment:—

From about the middle of October to the latter end of November, is the time to give the asparagus beds their winter dressing. This consists in cutting down the decayed stalks of the plants, close to, or within an inch of the ground, and clearing the beds from weeds, drawing them off at the same time with a rake into the alleys to be buried, and spreading some of the earth upon the beds, which is called *landing up*. Then proceed to line out the alleys, the stakes that are placed at the corners of the beds forming a guide: the alleys must be dug one spade deep, and a good portion of earth spread over each bed, two or three inches thick, and then nicely levelled with the rake. It may be supposed by some, that in annual landing up the beds, they may in several years be considerably raised; but by the spring forking and raking, together with the repeated hoeings and clearing off weeds in the summer, and at the time of preparing for landing up in the autumn, a considerable portion of the earth is annually drawn off again into the alleys.

About the end of March, [*January*,] or towards the middle of April, [*February*,] before the buds begin to advance below, proceed to loosen the surface of the beds; introducing the fork slanting two or three inches under the surface, turn up the top earth near the crown of the roots, with care not to wound them. Then rake the surface of the beds level, and draw off the rough earth and hard clods into the alleys; also trim the edges of the beds, and surface of the alleys regularly and even. Loosening the bed in this manner enables the shoots to rise in free growth, admits the air, rains, and sunshine, into the ground, and encourages the roots to produce buds of a handsome, full size.

In general, transplanted asparagus comes up but slender the first year; it is larger the second; and the third year a few shoots may be fit for gathering; and the fourth, the crop will be in good perfection.

The best method of cutting them is to scrape away a little of the earth from each shoot; then with a sharp-pointed knife, made on purpose, with a narrow blade, six inches long, and finely sawed at the edge, cut off the shoot slantingly, about three inches below the surface, taking care not to wound the younger buds, advancing below in different stages of growth. Asparagus is in the best condition for cutting when it projects three or four inches above the ground, and while the top bud remains close and plump.

The cutting season usually commences towards the latter end of April, [*March*,] and should never be continued beyond midsummer.

Asparagus beds, with good culture, will continue to afford plentiful crops for twelve or fourteen years, after which the stools usually decline in fertility, and the shoots in quality; but the author has known instances of beds producing large and fine asparagus for a much longer period.

I have frequently observed in many gardens the depth of the alleys, which should always be kept filled up to within eight inches of the surface of the bed, as the roots of the plants extend as well as descend; if the alleys are left deep, by cutting down the sides of the beds and deep digging, the plants are materially injured.

The following hints may be useful to the young horticulturist. A bed twenty yards long, with four rows of plants, at one foot apart each way, will take two hundred and forty plants which at four years old will produce above one hundred shoots daily throughout the season; and the quantity will increase every year. The author has had more than fifty buds in the season, produced from one single root, the bed being in a high state of cultivation, according to the method previously advised. From the above statement, a calculation may be made as to the quantity of land required to be planted to supply the wants of the family.

Where asparagus beds run east to west, or north to south, and the alleys are well filled up they may be planted on the warm side, with a row of kidney beans of an early kind, which will not interfere with the cutting of the grass, and will produce sooner by a week or ten days than if sown in the open ground; or, occasionally where ground is scarce, a central row of early spring-sown cauliflowers may be planted, at thirty inches apart. The author has grown them remarkably fine in such situations, without any detriment to the beds.

Asparagus beds should be enriched with an addition of good rotten dung, once every two or three years at farthest; the benefit of which will be evident in the quantity, as well as the size and quality of the produce. The dung for this purpose should be completely rotted, like that of old cucumber or melon beds. It should be applied after the stalks are cleared off, and spread two or three inches thick over the surface of each bed, and a double portion in the alleys; the beds being then slightly fork-digged to bury it; after this, dig the alleys in the usual way, and spread a portion of the earth evenly over the beds. In this way the enriching quality of the manure will be

washed to the roots of the plants by the winter rains. [A more recent mode of culture, is to plant the roots in single rows, on small ridges, four feet apart, and near the surface. The object being the "enriching of the surface soil, and encouragement of the surface-feeding roots, in opposition to the usual practice of deep trenching, and deep manuring." The plan is said to have answered admirably, but we doubt whether the ridge system will answer as well in our climate as in Great Britain (where it has been introduced,) owing to the greater sultriness and heat of our summers. We, however, strongly recommend the surface culture. Let trenches be prepared from four to six feet apart, filled with manure, and the roots planted thereon, and covered three or four inches. The excellence of the shoot does not consist in its being blanched, but in having a rapid growth. Those who may wish to blanch them, may earth them up just before they shoot, or adopt the Austrian mode, and place over each a hollow tube twelve inches long. The large canes of our swamps would answer well for this purpose. The intervals between the rows can be cropped, the working of which will be an advantage to the asparagus. In the winter the manure can be applied over the plants, or what perhaps will be better, along the sides, and between the rows, which will also answer for the succeeding intermediate crop, for plants receive nourishment only from the spongioles, or extremities of their roots. Saline manures, such as sea-weeds, sedge, marsh, &c., are strongly recommended as manure, as well as pickles from meats, and even common salt. The produce from the surface system is said to be much greater and finer than from the old mode.] J. D. L.

NEW POST OFFICE REGULATIONS IN ENGLAND.—SEEDS SENT BY POST.

From the Gardeners' Magazine.

We have lately received not only seeds, cuttings, and scions, but even entire plants, and yesterday a shrub, roots and branches, (Vaccinium humifúsum), in a penny letter. From Messrs. Sang, of Kirkcaldy, we received a prepaid packet very neatly done up, containing the seeds of twelve kinds of annuals, each with the name printed, and the price of the whole twelve only 1s. If this does not lead to the general distribution of every useful and ornamental plant of which seeds are procurable, the fault will be in the public, not in government. We only wish that the foreign postages could be lowered a little, that our ornamental annuals might be sent all over the continent; for, it is a fact that will not be denied, that annual plants, even those of warm climates, make a far more splendid appearance in Norway, Sweden, Russia, and the north of Germany, than they do in England, owing to the brighter sun and longer days of these countries during the summer season. Great part of the Californian annuals might be naturalized in the woods of Norway and Sweden, and many superior varieties of bread corn, and of pasture grasses and herbage plants, might be introduced into these countries by post, if the postage abroad were only a little lower. An interchange of seeds amongst all the curators of botanic gardens in Europe and America is a result to be anxiously desired, not merely by the botanist, but by the horticulturists and the farmer. If ambassadors were what they ought to be, matters of this kind would have been attended to long ago.—*Cond.*

MODE OF PREPARING SAUER KRAUT.

From the Penny Magazine.

The Germans consider the cabbage a more economical plant than even the potato; but in its natural state it could not form, as it does in Germany, a principal article of diet amongst the healthiest and stoutest part of the population, and it therefore undergoes a peculiar preparation, after which it is called "sauer kraut." Cabbage thus prepared in the German fashion has been recently introduced in the dietary of the British navy, and occasionally it may be seen at table in England, in the houses of private individuals. The following recipe for making sauer kraut is from a work entitled 'Germany and the Germans,' written by a gentleman long resident in that part of the continent:—"When the cabbage has arrived at maturity, or even beyond it, that is, when white and very hard (for the crops are left in the ground till late in autumn), the outer leaves are first peeled off, the cabbage is then divided, and the stalk entirely cut away. It is now placed in a machine, which sets in motion several sharp blades, that cut it much in the same manner as we do pickled cabbage, but finer. This process being completed, the whole is closely packed in barrels, and between each layer of cabbage is placed a sprinkling of salt, carraway seeds, and juniper berries. When the barrels are full, they are closely covered, and pressed by heavy weights. In three weeks or a month it is fit for use, and will keep good for years. Care must be taken, when any part of it is removed, that the remainder is left covered with its own brine. During the season for preparing the sauer kraut, thousands of persons in Germany are employed in cutting the cabbage. It requires four hours to boil, and is usually served with salt meat. The Bavarian method is, after it has been boiled, to mix with it butter and red wine."

ON COMMON SALT AS A MANURE.

From the Farmers' Series of the Library of Useful Knowledge.

Salt of various qualities is produced in several countries, and known according to the different sources from which it is obtained—whether from the waters of the sea, from salt-springs, or from mines. It cannot, therefore, be strictly called a mineral, unless when found in the state of rock-salt; yet partaking of the nature of that fossil, and not having here to consider its effects in any other light than as a manure, we deem it unnecessary to enter upon any discussion of its peculiar properties when manufactured, and shall, therefore, confine our observations to its effects upon the soil.

In consequence of the former excise duty, which has been only lately taken off, the use

of salt, as manure, has been upon too limited a scale to justify any positive conclusion regarding its merits*. Indeed, like almost every question connected with experiments on agriculture, this has given rise to opinions so utterly discordant, as to leave the decision of its value in much the same doubt as when it was first broached. Statements have been brought forward by many eminent farmers, which, though made upon apparently strong grounds, and without any doubt of their candor, yet broadly contradict each other, and the evidence produced before the board of trade in 1817, and before a committee of the house of commons, appointed, in 1818, to consider the subject of the salt duties, although certainly in most instances loudly commendatory of its employment for the general purposes of husbandry, has left the subject of its application to the land in nearly similar uncertainty.

It was represented as operating as a manure upon arable land by its tendency to promote putrefaction, as well as by stimulating the powers of vegetation through its absorption of moisture from the atmosphere; as being destructive of weeds and insects, and a preventive of rust; as improving the herbage of grass-land, destroying the moss, and rendering fodder palatable which would be otherwise refused by cattle; and as acting as a condiment conducive to the health of all animals. The abandonment of the duty was therefore hailed by its advocates as a special boon to the agricultural interest, and it has certainly been proved in numberless instances to have been successfully applied to some soils under peculiar circumstances; yet, except in cases where its use has been rather governed by local facilities than by any conviction of its real value, farmers do not appear to have generally availed themselves of its advantages as a manure, though it is gradually creeping into use for live stock. It is, indeed, admitted on all hands to be noxious to the whole tribe of slugs, and worms of that description, though we have yet no proof which can be relied on of its preventing the ravages of the fly on turnips; its effects in correcting the faults of sour pasturage and spoiled fodder seem also to rest upon grounds which can hardly be doubted †. There are also proofs of its power in checking the rust in corn; for although that disease has been generally attributed to the varying changes of the atmosphere, yet it was stated in the evidence of Dr. Paris before the salt committee, that it was the practice of many farmers in Cornwall to spread about 30 bushels of salt, the refuse of the pilchard fishery, weighing 56 lbs. each, per statute acre upon their land, a fortnight previous to the sowing of turnips; and they all agreed that they never had any rust on the following crop of wheat where this was adopted, though before they were greatly affected by it. In the course of a very minute inquiry into the causes of rust, undertaken some years ago in this country, and afterwards continued at different periods on the continent, it also appeared, that it was never experienced in the immediate vicinity of the sea, unless when the ground was greatly overmanured; and that when sea-ooze or sand was employed as manure, it was prevented*. This, however, does not apply to the practice of *steeping seed-wheat*, which can only have the effect of purifying it, but cannot, it is presumed, prevent the grain from afterwards receiving infection from the air, and which, indeed, applies rather to *smut* than to *rust* or *mildew*. Its influence in forwarding the putrefaction of manure depends upon the quantity in which it is employed †; and although its property of absorbing moisture from the atmosphere, and retaining it in the ground, constitutes, perhaps, its chief value when applied to light soils and in dry summers, yet, on heavy land and in wet seasons, its power seems to have little effect: it has therefore fallen into disrepute with many persons who have tried it without due attention to these circumstances. It is, indeed, evident, that the extravagant expectations entertained of it by some, and the disappointment experienced by others, have been occasioned by the contingent nature of its character, which, depending not alone upon the amount in which it is used, but also on the quality of the soil and on the state of the weather, must render it occasionally ineffectual. That it contributes to the health of animals is a fact now universally granted; though its specific virtues when administered in different quantities to stock of various species, age, and condition, have not been yet sufficiently ascertained, nor have we

* The duty amounted to about 30*l.* per ton, the original value being under 20*s.*; and although, in the preparation of the brine, there is a refuse part formed by the separation of the grosser particles from the pure salt, and which was for a long time sold to the farmers duty free, yet this was afterwards prohibited and the whole of the foul salt, which was produced in one of the districts of Cheshire to the yearly amount of near 120,000 bushels, was carefully swept away after the process of manufacture was completed, and then in the presence of the exciseman thrown into the river Weever.

† Salt destroys vermin by making them void the contents of their bodies; such evacuations being too powerful for them to withstand.—Lord Dundonald on Chemical Agric., p. 138. See an experiment in proof of this, in the Farmers' Magazine, vol. xviii. p. 440, in which it is stated that grubs, full of food, when placed in fresh earth in which some young roots of grass were transplanted after being very slightly pickled with common salt, were in 24 hours reduced to mere skins, and two out of three dead. Also Johnson's Observations on Salt, 8th edit., pp. 8 and 10.

* See the report of the Committee, p. 30; also Cuthbert Johnson's Essay on Salt, p. 49; Sir John Sinclair on the Rust in Wheat, Farm. Mag., vol. xix.; Ibid., vol. xx. p. 435; and Sir Thomas Bernard on Salt, p. 278. It is also stated in Dr. Thomas Thompson's System of Chemistry, that "in the water given to plants which are natives of the sea-coast, a minute infusion of common salt would consult the natural circumstances of that description of vegetables, and that they languish without it;" which is confirmed by Professor Davy's experiments on the effect of different salts conveyed in water to the roots of plants as recorded in his Elements of Agricultural Chemistry, 4to., p. 296.

† If used in large quantities, it is antiseptic; but if moderately mixed up with composts, it has been found to promote the putrefaction of the vegetable and animal substances which they contain. The quantity has, indeed, been stated as high as a ton to the acre; but this is either foul salt, which has been used in the fisheries, or the refuse of brine which has been manufactured, and which cannot be estimated at more than one-half, or perhaps one-third, of the weight of pure salt.—Sir H. Davy, Elem. of Agric. Chem., 4to, p. 295; Cheshire Report, p. 237.

now to consider of its employment for that purpose. We therefore neither accord in all that has been assumed in its favor, nor yet in its disapproval; and limiting our examination to its operation upon the land, we shall now state some minutes of the experiments which have been tried, from which every intelligent farmer may draw his own conclusions.

Experiments on salt.—In Holland's Survey of Cheshire, instances of its influence in destroying weeds and insects are mentioned; and its *effects on fallows* are thus detailed:—

'To account for the difference of effect arising from the application of salt as a manure, we may refer principally to two causes: viz., a difference in the mode and degree of application, and a difference in the nature of the soils on which experiments have been made. The first of these causes must undoubtedly have the most important influence. Regarding its action upon vegetable matter as that of a stimulus, it is natural to conclude that its effects must be varied very greatly by the proportion applied. If used in large quantity, it has a tendency—like every other excessive stimulus—to disorganize and destroy the vegetable substances with which it comes into contact: when a smaller proportion is applied, or when it is mixed up into a compost and employed in this state, it may be regarded, by the moderate stimulus it gives to the action of the vessels in the plants, as a promoter of vegetation, and consequently as a valuable manure. In this respect its effects are analogous to those produced by a similar application of lime; the influence of both substances upon vegetation being varied greatly by the proportions employed. In some instances, as when the land is lying in fallow, it would appear probable that the application of salt might be productive of advantage, by effecting the destruction of all useless vegetable and animal matter. Its quantity would also be so far diminished by the time the seed was put into the ground, as to fit it for affording that degree of stimulus which is most beneficial to vegetation; for, by being mixed sufficiently with the soil before the grain is sown, it adds a strong nutriment, and ensures the best of crops.

To this some observations to the following effect are added by Sir Thomas Brooks, in his tract upon the salt-duties, from information obtained through Mr. Hollinshead, of Chorley, in Lancashire, a gentleman who devoted a great portion of his long life to a scientific and practical inquiry into the uses of salt as a manure.

With regard to the *quantity to be applied**, he observes, that 'When a farmer intends to fallow a piece of ground, he ought first to sow it with such a quantity of salt as would be sufficient to destroy vegetation,—namely, 40 bushels per statute acre, which, by cutting and dividing the viscous substances in the earth, would reduce it into a proper state to become food for plants. The farmer must take notice that this salt is to be sown on the ground some time before he begins to work his fallows with the plough: the autumn will be the most proper season, in order to give the salt sufficient time to destroy the grass and other roots upon it, before he begins to work it. The salt, being thoroughly mixed and incorporated with the soil during the spring and summer following, will, while the land is under the plough, be reduced, by the time the seed is sown upon it, to that strength which is the most proper for effectually and vigorously assisting and supporting vegetation when the grain is in the ground. This method of sowing the intended fallows with salt will therefore serve very much to lessen the labor of the husbandman in working his grounds; for the tough and adhesive clods and lumps, which are generally so troublesome, especially upon clayey soils, will be so completely broken and dissolved by the operation of the salt as to give much less obstruction to the harrow at the first working.' Such is the practice which he recommends on deep loamy dry soils; but, for other corn lands, sown in the usual way after a spring ploughing, he advises the spreading of 16 bushels of salt per acre immediately after the grain is covered in by the harrow, and afterwards sowing 10 bushels per acre annually, by which means he affirms that 'these lands will be ever after considered exceedingly productive.'

In the Report of the Committee of the House of Commons, various experiments, are also stated in which salt has been applied to fallows: one, representing the crop as nearly treble in proportion to the rest of the same field, and both the grain and the succeeding crop of clover, as of a superior description; but it appears from the same report, on the testimony of respectable individuals, that in three of those cases it was of no use whatever as manure. In two of the experiments, however, the quantity has not been distinctly stated; and in the third, which was made with great accuracy, the utmost amount laid upon the land did not exceed 10 bushels in one instance and 12 in another†; whereas nothing less than from 30 to 40 bushels of foul salt per acre can be employed upon fallows with any prospect of success.

On its *application to corn*, the following experiments *in the field practice* are taken from Mr. G. Sinclair's Prize Essay, communicated to the board of agriculture, in 1820‡:

Wheat after barley.

Soil, without manure	produced	16½	bush. per acre.
——, dressed with 11 bush. of salt	"	22¼	"

Wheat after flax.

Soil, with 11¼ tons of spit manure	produced	16½	bush. per acre.
Soil, with 6½ bush. of salt on the surface	"	22	"

* It should here be remarked that the quantity mentioned applies to *foul salt*, the strength of which is not more than generally one-third, or at the most one-half, of that of *pure salt*; if the latter be used, it should therefore be diminished in a similar proportion.

† Rep. of Salt Com. pp. 152, 162.

‡ This essay contains tables of the result of a great variety of experiments upon the comparative use of salt, lime, soot, dung, and oil-cake; as well as trials of the effects of salt upon wheat, when applied after various preceding crops, and affords much curious and important information.

Wheat after beans.

Soil, without manure - - - - - - - - -	produced	11½	bush. per acre.
——, with 6½ bush. of salt on the surface - - - -	"	21	"

Wheat after peas.

Soil, without manure - - - - - - - - -	produced	16	bush. per acre.
——, with 6½ bush. of salt with the seed - - - -	"	17¾	"
——, with 6½ do. dug in with the seed - - -	"	23¼	"
——, with 6½ do. and 6½ bush. of soot dug in - -	"	20	"

Barley after turnips.

Soil, without manure - - - - - - - - -	produced	12	bush. per acre.
——, with 5½ bush. of salt applied before sowing - - -	"	28⅓	"
——, with 11 do. do. - - - - -	"	28¾	"

The experiments were unfavorable to the use of salt on *oats*, so far as they were then carried; but the quantity applied appears to have been too large to admit of a fair trial of its real merits.

Mr. Sinclair also mentions experiments on spaces of 36 feet square, manured with salt at the rate of 5½ bushels per acre, drilled with *Talavera wheat* on the 5th of November, and reaped on the 2d of August, which respectively yielded produce at the extraordinary rate of 91, 73, and 82 bushels per acre, when mixed, in the first instance, with the soil four inches deep, before sowing; sown, in the second, with the seed; and in the third, simply applied to the surface. On which he observes, that the result of this extraordinary produce upon these small plots of ground must not be considered erroneous, for that he has seen produce equal to upwards of 23 quarters an acre, although one-eighth of the ground was without plant. Such instances are, no doubt, rare; but experiments are usually conducted with greater care on small spots of ground than in fields of larger size; the quantity of land is accurately measured, the soil generally of superior quality, and the product collected to the last grain; whereas we all know that, in the common practice, there is much waste both in the reaping and the carrying of grain, as well as much ground lost in roadways and fences. The same result cannot be expected as in more extended operations, but such trials are valuable as affording evidence of the comparative advantages arising from different kinds of manure.

To this we have to add a recent communication from Mr. Sinclair, in reply to an application to him for some further information on the subject, in which he says, 'that the facts here stated may be depended upon; that his opinions of the utility of the manure remain unaltered; and to these experiments he refers, as the fullest evidence of his convictions on the subject.' But, with that candor which distinguishes every man whose object is unprejudiced investigation, divested of any bias to the promotion of a favorite object, he adds, 'that it is not free from anomalies, which time and further experience can alone reconcile.'

On the subject of *wheat and barley*, Mr. Cuthbert Johnson also mentions, in his observations on the employment of salt, that on his own farm, at Great Totham, in Essex, he had increased the produce of the former, upon a light gravelly soil, to the extent of 5½ bushels per acre, by the use of 20 bushels of salt. On the same land, he also states the result of the following experiments on wheat to have been:—

Soil, without any manure for four years, produced 13 bushels 26 lbs. per acre. Soil, manured with stable-dung to a previous crop of potatoes produced 26 bushels 52 lbs. per acre. Soil, with 5 bushels of salt per acre, and no other manure for four years, produced 26 bushels 12 lbs. per acre.

Another Essex farmer, Mr. James Challis, of Panfield,—whose soil is described as being of a loose, hollow description,—had a dressing of salt put on it in November, after the wheat was sown, of about 14 or 15 bushels per acre, which is also stated to have produced at the rate of 6 bushels per acre more than that which was not dressed, and was considered to be 20s. per load better in quality. Several experiments, indeed, have shown the grain to be heavier, in proportion as the quantity of salt was larger. Other accounts are likewise given of the produce of wheat crops when manured with stable-dung, in comparison with salt, which are so largely in favor of the latter, that we fear to repeat them, lest they should appear to throw a doubt over the accuracy of the statement*.

On the subject of barley dressed with salt, Mr. Ransom, of Sproughton, in Suffolk, says that 'it presented no difference of appearance to the rest of the field, until a fortnight before harvest; the salted crop was then brighter, and about one week forwarder than the rest of the field; and the following were the results when carefully cut and measured:—

Soil, without any manure, produced 30 bushels per acre. Soil, dressed with 16 bushels of salt per acre, in March, produced 51 bushels per acre.

Regarding *root crops*, Mr. Cuthbert Johnson also mentions his having been informed by Sir Thomas Acland, that salt has been laid upon his farm at Killerton, in Devonshire, at the rate of 40 heaps of earth to the acre, in each of which heaps 33 lbs. of salt were well mixed, and let to lie a a fortnight before being spread upon the land, which was afterwards ploughed three times, and then sown with mangel-wurtzel, which had roots that weighed 32 lbs. each. A field was also dressed for turnips; one-third with salt prepared in the same manner, one-third with lime, and the remainder with hearth-ashes. When the seed came up, the turnips appeared most promising where the hearth-ashes were; but, after the first month, they did not grow so fast as where the salt or lime was; after that time, the turnips

* See a publication by the Rev. B. Dacre, entitled 'Testimonies in favor of salt as a manure and a condiment for cattle.'

where the ground was manured with salt grew faster, the green looked stronger, and at the end of the season they produced the best crop.

To this he adds the testimony of Mr. Collyns, of Kenton, in Devonshire, who says that 'barley and oats which used to yield only 15 to 20 bushels per acre, now yield from 40 to 45; the wheat is also much improved in quality but not so much as was expected in quantity. Thirty-five bushels of wheat have been produced from an acre, dressed with 10 bushels of salt; and from the same field last year, after the same quality of soil, 140 bags of potatoes. This year, however, it has only produced 20 bushels, though again manured with 10 bushels of salt; but the quality is very superior, and the root of clover in it is very fine and luxuriant.

From a communication by Mr. Davies Giddy on the culture of turnips, it appears that on a part of a field which had been previously exhausted, half a crop was produced, but totally failed on that part where the ordinary manure was laid without salt. In another instance three acres of land, which on the preceding year had borne a crop of wheat not exceeding 12 bushels to the acre, were ploughed before Christmas, and brought into fine tilth by the midsummer following. On each acre were sown 20 bushels of salt, excepting that two ridges, towards the middle of the field, were purposely left without it; and on these the turnips totally failed, though the remainder of the ground produced an abundant crop. It is further instanced, that four acres of land, completely worn out by successive tillage, were sown,—three acres with salt, at the rate of 25 bushels, and the remaining acre with 18 bushels, without any other manure; the crop was in general a good one, but was visibly the best where the greatest quantity of salt had been used*.

Mr. Hare, of Beaconsfield, in Buckinghamshire, has used salt at the rate of 2 cwt. per acre on a large field of very gravelly soil, part of which was left without any manure, and the remainder dunged as usual; yet the turnips produced on the salted acre were just as good as those raised from any other part of the ground. In the following year, on another field of the same quality, he manured the whole of it with farm-yard manure, adding to one acre of the field thus manured 2½ cwt. of powdered rock salt; and on this salted and manured acre, he had a larger and a finer crop of turnips than was produced upon any other field of equal extent in the whole parish. Sir John Sinclair has also tried it, on a small scale, with equally good effect†.

Some comparative experiments have been likewise made with *salt and soot*, as well as with stable-dung when applied in different proportions to carrots and potatoes, which produced crops at the following rates per acre. Those by Mr. G. Sinclair, of Deptford, were:—

No. 1. Carrots sown without any kind of manure, produced 23 tons. 9 cwts. 107 lbs. No. 2. 13½ bushels of salt mixed and sown with the seed, produced 30 tons 12 cwts. 79 lbs. No. 3. 6½ bushels of salt dug in previous to sowing, produced 44 tons 14 cwts. 17 lbs. No. 4. 13½ bushels of salt dug in previous to sowing, produced 31 tons 13 cwts. 40 lbs. No. 5. 6½ bushels of salt and 6½ bushels of soot, dug in previous to sowing, produced 40 tons 4 cwts. 97 lbs.

Those of Dr. Cartwright, of Tunbridge, upon a ferruginous sand, brought to a due texture and consistence by a liberal covering of pond mud, were:—

Potatoes, without any manure, produced 157 bushels per acre. Potatoes, with 9 bushels of salt per acre, produced 198 bushels per acre. Potatoes, with 8 bushels of salt per acre, and 30 bushels of soot per acre, produced 240 bushels per acre. Potatoes, with 30 bushels of soot per acre, produced 182 bushels per acre.

The effect of salt mixed with soot is remarkable;* the roots of the carrots in No. 2 were the smallest; in No. 4, the largest; and in No. 5, the healthiest. The experiments made by Mr. G. Sinclair upon potatoes, planted in a soil composed of three-fourths siliceous sand,—both without any kind of manure, and at the rate of 13½ and 6½ bushels of salt with the seed, as well as 13½ bushels mixed with the soil—left no room to doubt of the advantage of 13 bushels per acre, applied to the land previous to the planting, over the other modes of application; but the superiority in either case was not very great.

Those of Mr. Cuthbert Johnson, upon a light gravelly soil, were:—

Potatoes, without any manure, produced 120 bushels per acre. Potatoes, with 20 bushels of salt per acre, laid on in the previous September, produced 192 bushels per acre. Potatoes, with stable dung at the time of planting, produced 219 bushels per acre. Potatoes, with stable dung and 20 bushels of salt produced 234 bushels per acre. Potatoes, with 40 bushels of salt alone, 20 laid on in September, and 20 in the spring, after the sets were planted produced 192½ bushels per acre. Potatoes, with 40 bushels of salt, as in the last experiment, and also with stable dung, produced 244 bushels per acre.

The trials made by Mr. Forbes, of the Pinefield Nuseries, near Elgin, upon *salt, when compared with farm-yard manure*, as dressings for root crops, however, tend to show the latter to be in every instance superior; and also to prove that when used in a large quantity it is injurious to vegetation, as it will be seen by the annexed table that the crops were lighter in proportion as the amount of the salt employed was larger. It was laid on in the proportions there stated *per Scots acre*, and an equal measure of land was moderately dunged; but though it appears from the produce that only a very small spot of ground was devoted to the experiment, yet that will not invalidate its accuracy.

* Annals of Agriculture, vol. xxvii.

† See his Code of Agriculture, 3d edit., note in the App., p. 40.

* Dr. Cartwright remarks, 'that there is no reason to suppose that the effects of salt, when combined with soot, were produced by any known chemical agency upon each other. Were I to guess at the producing cause, I should conjecture it to be that property of saline substances by which they attract moisture from the atmosphere; for I observed those beds on which salt had been used were visibly and palpably moister than the rest, even for weeks after the salt had been applied, and this appearance continued till rain fell, when, of course, the distinction ceased. This property of attracting moisture had greater influence possibly on the soot than on any of the other

Salt, at the rate of	2 tons.		1½ ton.		1 ton.		½ ton.		Dung.	
	lbs.	oz.	lbs.	oz.	lbs.	oz.	lbs.	oz.	lbs.	oz.
Onions	8	0	8	4	10	8	15	0	20	0
Carrots	13	0	17	0	20	8	24	0	28	0
Turnips	30	0	32	0	30	0	27	0	34	8
Potatoes	11	0	11	0	12	0	14	0	24	8
Mangel wurtzel	39	0	40	0	41	0	40	0	40	8*

Salt has been tried against farm-yard manure after the rate of 15 tons per acre upon a light sandy soil, and no difference was observed in the crop of turnips. It has also been mixed with the seed of turnips, and sown in drills at the rate of 14 bushels per acre, but the seed did not vegetate, owing, as it was supposed, to its being too closely combined with the salt; for the ground having been again ploughed and harrowed, fresh seed was sown broadcast, which grew and flourished. When top-dressed with salt they have also succeeded, though no effect has been observed regarding their prevention of the fly; and when spread under furrow, the crop was eaten off by the beetle.†

Although the experiments on the application of salt to *meadow and pasture land* generally agree in their representation of improvement having been thereby effected in the quality of the herbage, yet we have to regret that they are so few and so inconclusive, as not to afford any decisive proof either regarding the comparative weight of crops thus manured, the season in which it may be the most advantageously applied, or the quantity in which it should be laid on different soils. In the Cheshire Report it is indeed said, that eight bushels of refuse salt, per acre, having been spread, in the middle of October, on a piece of *sour rushy ground*, and sixteen bushels on another part, the vegetation in a short time disappeared totally; and, in the month of April following, not a blade of grass was to be seen. In the latter end of the month of May, however, a most flourishing crop of rich grass made its appearance on that part where the eight bushels had been laid; in the month of July, the other portion produced a still stronger crop; the cattle were remarkably fond of it; and during the whole of the ensuing winter, and for several years, the land retained, and still exhibited at the time this account was written, a superior verdure to the surrounding closes.‡. This, however, probably alludes to *pure salt*; for it is stated in Sir Thomas Bernard's pamphlet, that sixteen bushels of *foul salt* having been laid, in the month of April, upon a field, which, for many years, had borne a very dark-colored dry kind of grass, which neither horses nor neat cattle could relish, had ever since that time borne herbage which was perfectly green, and upon which stock of all kinds throve remarkably.

The statements of its effects upon the *artificial grasses* are also too meager to be relied on, though the application of six bushels of salt to an acre of red clover, upon a good turnip soil, is said to have increased the produce, at the very least, 10 cwt. per acre; the aftermath, also, proportionably good, the cattle eating it down close, and in preference to every other part of the field * *Hay of all kinds*, when coarse, or injured by the wet of an unfavorable season, has, however, been very generally proved to be so far improved in its quality by the addition of a quantity not exceeding about a peck of pure salt to a ton of hay, thinly sprinkled over the layers in the stack, as not merely to be rendered palatable to stock, but in many cases to be consumed with even superior relish. When the crop has been much exposed to rain, it checks fermentation, and prevents mouldiness†.

We have refrained from reciting the arguments which have been employed to urge the use of salt as a manure, because we think it should rest upon practical proof, rather than upon theory, however specious; yet we cannot help remarking that corn grown in the neighborhood of the sea is distinguished by its superiority of weight as well as color; and that salt marshes are known to possess highly fattening properties when fed by cattle. It is, therefore, only reasonable to suppose, that the application of salt to the land may be productive of similar effects, and we have taken the foregoing extracts chiefly from those statements of experiments which have resulted in its favor, because they hold out the promise of its being advantageous: for every kind of manure is of such great importance to agriculture, that we wish to induce farmers who have not already experienced its effects, to make repeated comparative trials of it upon their own land. We say *repeated*, because we are convinced that nothing short of a continued series of trials can be decisive of its merits; and *comparative*, because in no other way can any safe conclusion be drawn regarding its competition with other manure. We must also remind them, that its cost is now so trifling as to put it in every man's power to satisfy himself of its value at a charge that is not worth mentioning; and that any one who fails to do so must be regarded as seriously inattentive to his own interests.

It would, however, be unfair to withhold all that has been written in opposition to its use; and among those treatises which are best entitled to attention on that side of the subject, are some prize essays in the papers of the Highland Society of Scotland, on 'Experiments with Salt as Manure,' which, though they leave the question of its value still in doubt, yet rather tend to throw discredit upon its employment; for, notwithstanding one of these writers—who is a farmer of experience—expresses himself in support of it, yet

manures with which it was tried, as soot, from its acrid and dry nature, may be supposed to require a greater proportion of water to dilute it than those substances which contain water already.'—Communications to the Board of Agriculture, vol. iv. p. 370.

* Gardeners' Magazine, June 1828.

† Cuthbert Johnson's Essay on Salt, 3d. edit., pp. 70, 72.

‡ Holland's Survey of Cheshire, p. 238.

* Cuthbert Johnson's Observations on Salt, &c., 1st edit., p. 10.

† Sir Thomas Bernard on Salt, p. 276. Surveys of the N. R. of Yorkshire, p. 177; and of Derbyshire, vol. ii. p. 182.

others are decidedly unfavorable. One of these reports, indeed, which is both minute and apparently accurate, states that it was tried upon crops of potatoes, oats, barley, and turnips, as well as upon natural and cultivated grass. Refuse salt was applied, mixed with ashes in the proportion of three-fourths of the former to one of the latter, and laid on at various rates from sixteen to thirty bushels per acre, both drilled in, and as a surface dressing upon land in some parts unmanured, and in others well spread with the best farm-yard manure. On the oats and barley, however, no perceptible difference was occasioned by its use; and on all the other crops it appears to have been injurious. The deficiency in the amount of potatoes produced upon that part of the ground which was only salted was indeed comparatively enormous; for, in two instances in which it was laid in the drills, the crop was only one-third of that upon which dung was used alone*.

In a paper published in the second volume of the Communication to the Board of Agriculture, the writer relates several experiments, in all which the application of salt, in various quantities, both on arable and pasture, was either completely or in a great measure unsuccessful.

Some statements to the same effect have likewise been lately published in the British Farmer's Magazine,† which show—

1st. That 24 bushels, equal to 1 ton of rock-salt, were ground into powder,‡ and on the 10th of April were sown on four separate roods of meadow land, at the rate of one-fourth, one-fifth, one-sixth, and one-seventh of a ton to the acre: on the 21st it appeared to have destroyed the grass on that part where the greatest quantity had been, but that was not the case eventually, as it afterwards recovered.

2nd. On the 14th of April it was sown on three equal portions of land, at the rate of one-fourth, one-fifth, and one-sixth of a ton per acre, on fallow, and on wheat growing, which was afterwards sown with red clover: on the 21st the weeds appeared to be destroyed, but at harvest time were like the rest.

3rd. At the same time it was laid at the rate of one-sixth of a ton per acre, on some fallow, which was afterwards sown with oats and clover.

4th. On the 25th of April, on the third ploughing for fallow, it was spread at the rate of one-fourth and one-sixth of a ton per acre worked and manured as the rest.

5th. At the same time, and the same rate, on the same ploughing, on some land that was sown with rape.

The above experiments were tried on a strong loamy clay, with a clay subsoil, and the result of the whole proved that they were not attended with any advantage.

6th. On the fifth ploughing of a good loam, it was laid at the rate of one-fourth and one-sixth of a ton for turnips, which had been regularly dunged, some of it being placed in the ridges before, and some after the manure. Some potatoes, on the same land, were also similarly treated; but no difference whatever was apparent in their favor.

These trials appear to have been made under the personal superintendence of the writer, and the editor vouches for the accuracy of the statement. The result is certainly in extraordinary contradiction to those of other experiments, nor is it possible to account for it in any other way than by attributing it to the nature of the soils on which they were made. If to be finally relied on, it would prove 'that the use of salt, as a manure, is of no value on strong or loamy soils;' but we are so far from agreeing to that conclusion, that we think it only affords additional proof of the propriety of every farmer judging only for himself, through his own experience.

Application of Salt.—From what we have thus stated, it must be apparent that nothing decisive has been ascertained regarding either the quantity or the season in which salt should be laid upon the land. It appears, however, that its effects are most visible and satisfactory when applied to hot, dry soils, and in very warm summers; but on cold, wet land, and in rainy seasons, or under a humid climate, its powers seem to become neutralized, and of little value. We are of opinion that, on arable land, it will be found more advisable to lay it on before sowing, than either with the seeds, or afterwards as a top-dressing. If applied, for instance, to a clover ley, either a few weeks before seed-time, or immediately after the first crop is off, it would effectually banish the slug; and it has been justly observed that, if all stubbles (not laid down with seeds) were to receive a slight dressing of salt before winter, it would not only tend to keep the land free from the slug, but probably also otherwise benefit the soil*.

In preparing the land *under the fallow-process*, it has been recommended to spread from 30 to 40 bushels per acre for the purpose of destroying the roots and insects in the soil, and breaking all the tough and adhesive clods which are found to be so troublesome in working the ground. This should be done in autumn, some time before the first ploughing; as the salt being thoroughly incorporated with the soil during the spring and summer following, its strength will be so materially reduced by the time when the seed is sown, that instead of injuring, it has been found to promote vegetation†. With regard to the destruction of insects, that object can, however, be attained with half the quantity; and we must again caution our readers against the indiscriminate recommendation given of the use of salt, without distinguishing whether it is *foul* or *pure*: on the application of 40 bushels of the latter, vegetation ceases.

When *applied in composts*, it is said to have been found more effectual than lime. It has been tried in Cheshire on barley and seeds, and greatly exceeded the most sanguine expectations that had been formed of it. A quantity of refuse salt having been also mixed up with earth, and another portion of the same earth with lime, the vegetation of that part of the field upon which

* See the Proceedings of the Society, from November, 1820, to December, 1823, vol. vi.

† No. ix. vol. ii. p. 427.

‡ When broken into small pieces, it runs through a corn-mill, and can then be ground as small as may be desired.

* British Farmers' Magazine, No. xiv. p. 66.

†Hollinshead on Salt as a Manure, 2nd edit., p. 17. Sir John Sinclair's Code of Agriculture, 3rd edit., p. 38.

the salt was laid was by far the healthiest and the most vigorous*. In Ayrshire it has been mixed with 32 bushels of lime-shells, and either spread singly or made up into a compost with 40 cart-loads of peatmoss, and has thus been found peculiarly favorable to the growth of wheat and beans. In those parts of the coast of Cornwall where the pilchard fisheries occasion considerable quantities of salt to be condemned, it is also much used as a preparation for turnips in composts mixed up with seasand, and spoiled fish, dung, and rotten slaty earth, in various proportions, to which from 40 to 60 bushels of lime are commonly added. The quantity of this kind of compost commonly applied to an acre, is usually about a ton of the fish and salt,—more or less as the fish prevails, and in that country it has been long considered as a most valuable and lasting manure, though probably its effects may be at least equally due to the oil and refuse fish, as to the salt with which it is combined.† It may also be advantageously mixed with stable-dung alone.

On *meadow ground*, Mr. Hollinshead advises the farmer 'to sow six bushels of salt per acre, immediately after the hay is got in; which will not only assist vegetation, and cover the face of the ground with grass, but will induce the cattle to eat up the eddish.' For *pasture land*, he however recommends the application of foul salt at the rate of 16 bushels per acre; or, which he seems to prefer, to apply it in the same quantity, mixing with every 16 bushels of the salt 20 loads of earth, turning it two or three times to incorporate it, and laying it on in the autumn.

In *frosty weather*, it has excited the surprise of many persons that, when the land was quite white through heavy hoar-frost, ground which had been top-dressed with salt remained perfectly green, and apparently free from its effects. It is, indeed known to chemists to be an enemy to congelation; but we have, as yet, no practical knowledge of its effects, in that view, upon vegetation, nor are we aware that its application would tend to preserve crops from the consequences of frost.

The *quantity of pure salt* recommended to be applied to land as manure is from 4 to 16 bushels per acre, beyond which it has been generally found to become injurious to crops when sown with the seed; but, if laid in the autumn upon land intended for a clean summer fallow, from 30 to 40 bushels may be spread, according to the condition and nature of the soil. In the directions for its use given in the recent treatises of Mr. Cuthbert Johnson, from 5 to 20 bushels are assumed as the limits of its application to different crops; and although we think that, in most cases, the latter quantity would be found too large, and that, in all, the rules for its adoption savor somewhat too much of theory, yet as, with due discretion, in many instances they may serve as guides for its employment, we here transcribe them with very slight alteration: with this observation, that they only apply to the first year's manuring; though it has been stated by Mr. Hollinshead and others, that an annual application of a much less quantity will always keep the land in a state of the greatest fertility:—

For wheat and rye, 10 to 20 bushels per acre put on after the seed has been harrowed in; the earlier the better, but may be done until March.

For barley, oats, peas, and beans, 5 to 16 bushels per acre. For these crops it has however been found beneficial, in the west of England, to lay it on after the seed has been harrowed in; but in counties less humid, it would be more advantageous to spread it in January or February.

For turnips, and most green crops, 5 to 15 bushels per acre, put on about a month before seed-time; or in January or February, as the salt will then meet the insects in their weakest state. Mr. G. Sinclair, however, says—that, for the destruction of slugs, salt should be used in not less quantities than 10 or 15 bushels per acre, applied to the surface of the land.

For potatoes, 10 to 20 bushels per acre in January or February, if no other manure be used; but if a light dressing of dung be intended at the time of planting, then half the salt to be spread after the plants have been covered in.

For hops, 15 to 20 bushels per acre, in November or December.

For grass-land, 10 to 15 bushels per acre in the autumn, and, if possible, not later than November; but may be put on, without injury, until February. If applied to the extent of 40 to 50 bushels, the old turf will be completely destroyed, but has been generally succeeded by a new sward of sweeter herbage.

In Dacre's 'Testimonies,' which contain a voluminous mass of facts adduced in favor of the use of salt for agricultural purposes, it is said, that although the fertilizing qualities of salt, when used by itself as a manure, are very great, it yet requires discretion to guard against putting on too much, a few bushels to an acre are sufficient. If any large quantity be put on, it will by its pungency and strength destroy vegetation for a time; but afterwards, when the salt has been well dissolved in the soil, the land becomes very rich. That when mixed with dung and other manure, it is highly efficacious; but the safest way of using it is, to sprinkle it occasionally over the dung in the cattle-yards, that it may amalgamate with it, and ferment.

The effects, as ascertained by the result of its use upon the continent, are described by that eminent agriculturist, Von Thaër, to be nearly similar to those we have stated. When applied in large quantities, vegetation seems completely stopped; but when the salt has been washed in by the rain, and partly decomposed by the mould, it adds to its force during several following years. On rich land, when spread in small quantities, it produces very sensibly favorable effects, though of short duration; but if laid upon a poor soil, in an equal quantity, it has been found wholly ineffectual*.

* Cheshire Report, p. 237.
† Sir H. Davy, Elem. of Agric. Chem., 4to., p. 295.

* Principes Raisonnés d'Agriculture, 2nde éd., tome ii. p. 432.

LARGE HOGS.

From the Kentucky Farmer.

Mr. Silas Evans, of this county, sold to Mr. Harrison Thomson, of Clarke, a large lot of 75 hogs, intended for the southern market; the average weight of the whole lot being 375 lbs. the heaviest weighing 480 lbs. Taking the number into consideration, we think this is as fine a lot of hogs as any we remember to have heard of. They were of the old Kentucky stock, with a slight mixture of the improved breeds.

We have also heard of another lot of about 20 hogs, raised and fattened by Mr. James Rainey, near Colbyville, well crossed with the Berkshire stock, which averaged 426 lbs. They were from 13 months to 2 years old, generally about 15 months.

KENTUCKY BLUE-GRASS, OR GREEN-SWARD.

To the Editor of the Farmers' Register.

Washington N. C. January 30th, 1841.

Dear Sir:—A few days since I had the pleasure of receiving Vol. viii. of Farmers' Register, from your hands, for which please to accept my thanks. Though I am no farmer, and have not a foot of soil to cultivate, I have ever felt a warm interest in the progress of an enlightened husdandry. I shall rejoice in the success of the cause which you advocate with so much ardor and ability, as well in the due appreciation and reward of your efforts. The Register does not come within my proper line of reading, but whenever I have met with a number, I have invariably found some article to interest and instruct me.

It was for some time a mystery why I had been honored with Vol. viii. I presume, however, that the solution was at length discovered in the words "see page 651," written on the cover of No. 1. If I have correctly *taken the hint*, I will reply, that you are heartily welcome to any aid I can give in removing the difficulty alluded to by Mr. Stevenson. It was but a few days before I received your present, that I had the pleasure of learning, through Mr. Stevenson's letter, what the famous *Kentucky blue-grass* is; and also of informing some inquirers in this place that it grows on their own lands. I have been long familiar with this grass, which, with its congener, *poa annua*, enters largely into the composition of the pastures of New England.

My attention has been forcibly drawn to this grass, in the low country of this state, where few if any really good grasses are found besides this, by its perpetual verdure. Wherever yards or lawns are turfed with it, they are verdant through the entire winter; thus indicating, as I supposed, its adaptation to this climate as a winter food. But what is more important still in this climate, it is the only grass of any value, that I have noticed, which endures the long continued heat of our warm season. It is only a long severe drought that parches it. So long as any moisture remains in the soil it continues verdant. I should judge, as this plant seems to affect shade, that it might be preserved through the severest drought in places where there are trees enough to check evaporation from the soil. Its endurance, in long continued heat, indicates its being more succulent than grass which burn up quicker, (and consequently *more nutritive?*) Muhlenberg says of it, "optimum pabulum," but I suppose the farmers know better than the botanists about that matter.

The great confusion in the vulgar synonymes of the grasses is a serious inconvenience to the farmer, and it must certainly be a great desideratum to have it cleared up. All plants which are extensively used are subject to the same confusion. I have not been able, after long inquiry, to settle the synonymes of the oaks and pines in this state. Every neighborhood seems to have a peculiar nomenclature.

I would suggest, as the most likely method of attaining Mr. Stevenson's object, that all persons interested in the subject should send *to you* two or three specimens of each kind of grass, with all the common names written upon a label attached to each kind. The labels might be numbered, and notes be sent, referring to the numbers on the labels, communicating any valuable information that can be given upon the several species. If you can interest your correspondents in this plan, so as to secure their action upon it, you will in two or three seasons have the material in hand for the consummation so strongly urged by you, vol. viii. p. 651.

If you have no friend more convenient, or better qualified for completing the work, after the material is collected, you are at liberty to command

Your obedient friend and servant,

M. A. CURTIS.

P. S. If you should approve of the plan I have suggested, and be inclined to propose it to your readers, will inform me thereof. I will give you the mode of collecting, preserving, and transporting the grasses. It is very simple, and will cost no one any trouble.

We take the liberty of publishing the foregoing private letter, with its author's signature, though not so designed to be used, and which we would not have done, if the writer were not already well known to the scientific and reading public, as one among the first of American botanists. We shall be much gratified, and the cause of agriculture as much aided, by his fund of knowledge being drawn upon, to furnish light to this obscure subject. We will gladly receive specimens of grasses, prepared and secured, as directed above, to transmit to the Rev. M. A. Curtis; but it will be much better, if as convenient, that they shall be sent to him directly, (at Washington N. C.) as our ignorance of botany would forbid our forwarding the object in any other way than the very humble one of serving as the channel of conveyance for the specimens. But as it is desired to have the various provinceal and incorrect names, as well as the botanical names and descriptions, of each grass, it will require for the formation of a list of synonymes, extensive enough to be very useful, the labors of botanists in different and re-

mote regions, and of sundry collectors of specimens. What each individual might do, would necessarily be imperfect—but the attention of several botanists and collectors, at remote points of observation, might furnish materials for one whole and complete and highly valuable list. This is the more desirable, as then the collection of specimens would be more complete, being made by, or under the direction of the botanists themselves. Besides Mr. Curtis, there are several other individuals who are among the readers of this journal, and valued contributors to its pages, who could essentially aid this object, not only from their knowledge of botany, but also because of the very different regions in which they reside, and the difference of the natural grasses, as well as of the various provincial synonymes of the same kinds. —Ed. F. R.

GRASSES—BOTANICAL AND VULGAR DESIGNATIONS AND SYNONYMES. THE WIRE GRASS OF VIRGINIA.

Westchester, Pa., Feb. 8, 1841.

J. S. Skinner, Esq.—Dear Sir—In the American Farmer of the 29th January, I observe an interesting notice of the "*Kentucky blue grass*," so called; and among other remarks, a desire is expressed, by the Editor of the Farmers' Register, that a more definite *nomenclature* might be furnished of the several grasses which are best known, and most important, to the agriculturist. It is no easy matter to collect all the local popular names of plants, and apply them accurately to the species intended. Nothing but a residence in the various districts of our country could enable any one to gather them all, and furnish a precise synonymy. Every neighborhood, almost, has its *own names*, for plants that are familiarly known; and unfortunately, many of them become transposed, or misapplied, so that the objects, meant to be designated, cannot always be ascertained without an examination of specimens. As, however, it is a favorite pursuit with me, I will endeavor, with your permission, to give a hasty sketch of the *synomymy* of those grasses which are most interesting to the agriculturists of the United States. A *scientific description* of them would be too voluminous for the present occasion; and moreover, such description may be found in any of the *Floras* already published. I will content myself with giving the *botanical names*, and annexing the most usual *popular names*; by which means the greater portion of the grasses known to our agriculturists, may be determined with accuracy.

Botanical names.

1. *Poa pratensis, L.*—This is the plant erroneously called "*blue grass*," in *Kentucky*. The English call it "*smooth stalked meadow grass.*" In *Pennsylvania*, and most of the other states, it is known by the names of "*green grass*," "*spear grass*," and "*meadow grass.*"
2. *Poa compressa, L.*—This is most generally "called *blue grass*," but is often called "*wire grass*," and is probably the "*wire grass*" of *Virginia*. The English call it "*flat-stemmed meadow grass.*"
3. *Phleum pratense, L.*—In *Pennsylvania*, and to the south and west, this is known by the name of *timothy*"; but in *New York*, and throughout *New England*, it is called "*herd's grass.*" The English call it "*cat's tail grass.*"
4. *Agrostis vulgaris, L.*—This is the "*herd's grass*" of *Pennsylvania*, and probably of the southern and western states, as far as it is known. It is also known in Pennsylvania by the name of "*red top.*" It is called "*fine bent grass,*" by the English; and a coarser species nearly allied to this, is the celebrated "*fiorin grass*" of *Ireland.*
5. *Dactylis glomerata, L.*, commonly called "*orchard grass.*" in the United States. It is the "*rough cock's foot grass*" of the English.
6. *Festuca pratensis, L.*—This, though a valuable grass, seems not to have acquired a distinct popular name in our country. In *England* it is called "*meadow fuscue grass.*"
7. *Lolium perenne, L.*, commonly called "*ray grass*" or "*rye grass.*"
8. *Avena elatior, L.*—Called "*tiller oat grass*" by the English; it has been partially cultivated in this country, under the name of "*grass of the Andes.*"
9. *Anthoxanthum odoratum, L.*—Called "*sweet-scented vernal grass,*" by the English: remarkable for its fragrance, when cut and partly dry.

The above-named grasses are more or less known, and esteemed, in the meadows and pastures of *Pennsylvania*; and it is remarkable that they are all believed to be *introduced* plants. Some of them are thoroughly *naturalized*; while others require to be *sown*, like cultivated grains, in order to insure a full crop. The following grasses, though of comparatively little value, may be enumerated for the sake of giving their popular names:—

Botanical names.

10. *Tripsacum dactyloides, L.*—This has been somewhat noted, under the name of "*gama grass,*" and "*sesame grass*"; but it never can compete with our better grasses, in good arable or pasture lands. It is too coarse and hard.
11. *Triticum repens, L.*—Called "*couch grass,*" and "*quitch grass,*" by the English. A pernicious foreigner, which is difficult to subdue, when once fully naturalized.
12. *Holcus lanatus, L.*—Called "*feather grass,*" and "*white timothy,*" a naturalized foreigner, of little value in our meadows.
13. *Eleusine Indica, Lam.*—Known by the name of "*dog's tail grass,*" and sometimes by those of "*wire grass,*" and "*crab grass.*" It is common in lanes and wood-yards; but is seldom seen in meadows or pastures, in *Pennsylvania.*
14. *Digitaria sanguinalis, Scop.*—This is commonly called "*finger grass,*" and "*crab grass,*" or "*crop grass.*" It is rather troublesome in our gardens and corn-fields; and is said to be particularly annoying to the southern planters.
15. *Setaria glauca, Beauv.*—Known by the name of *fox tail*"—a worthless grass, generally abundant in wheat stubble, after harvest.
16. *Bromus secalinus, L.*—Commonly called "*cheat,*" in Pennsylvania: and in the northern states, "*chess.*" A well known intruder in

wheat fields, and vulgarly supposed to be degenerate, or transmuted wheat.

The foregoing are the principal grasses which occur to me, as being familiarly known to our agriculturists, either on account of their value or as unwelcome intruders.

The remarks of Mr. *Stevenson*, respecting the *poa pratensis*, or "Kentucky blue grass," entirely coincide with my own observations and experience. It is decidedly the most valuable of the gramineous plants, in our *pastures*. It delights in rich calcareous and argillaceous soils; in which situations the numerous, linear, radical leaves, are often near two feet in length, and of the most luxuriant verdure. In poor, sandy, or slaty soils, however, it deteriorates so much, that it would scarcely be recognized as the same plant. I have never known it to be cultivated in Pennsylvania; nor do we find it necessary to sow the seed, where the soil is favorable. In such soils, it *comes in*, as the farmers term it—*i. e.* it supersedes the other grasses. As it is unnecessary to sow it in a *rich* soil, so would it be labor lost to sow it in a *poor* one. The only way, therefore, to have the benefit of this admirable grass, is first to *prepare the land for its reception.* If the soil be not naturally favorable—that is, if it does not consist of an adequate proportion of calcareous and aluminous earth, I should consider it a laborious undertaking to prepare it for a full crop of this grass; but whenever there is a good stiff loam, I have no doubt that a judicious application of lime and manure will facilitate, and speedily insure, the introduction of the plant.

My remarks have been extended so unexpectedly, that I must conclude abruptly—not, however, without the expression of my admiration of your efforts in the glorious cause of agriculture.

W. D.

The preceding article from the American Farmer of February 17th, which has been received since our last remarks on this subject were placed in the printer's hands, is from the pen of Dr. Wm. Darlington, of Pennsylvania, a distinguished botanist, and investigator of the botany of the region in which he resides, (of which he has written and published a '*Flora*') and some of whose communications to other periodicals we have taken pleasure to copy into this. So far as it goes, the form and plan of this list of grasses, and their synonymes, are excellent; and it only requires to be amplified where it is deficient, and corrected where erroneous, as to vulgar names, (for in this the most learned must be sometimes misled by the most ignorant nomenclators,) and to be extended to other grasses and plants, either of important utility, or whose habits it is desirable to know, as indicating peculiar qualities or conditions of soil. The latter is a curious and interesting subject, which botanists have almost entirely overlooked. The prevalence of certain plants in some localities, and their entire absence in others not far distant, have been ascribed (and often most absurdly) to supposed differences of temperature, exposure, elevation, &c., when in truth it was the difference of the chemical constitution of soil, though not perceptible by any other indications. Thus, sheep sorrel, and "hen's nest grass," or what we have termed "poverty grass," are unerring indications of excess of acidity in soil, and deficiency of calcareous matter, as the growth of saint foin (in Europe) and of red clover, or of our "wire-grass," is of opposite qualities. Thus, if observed and marked, these and many other plants would offer the most unerring indications of the constitution and the wants, and the means of improving soils.

We take the liberty of suggesting to botanists, and to others who are disposed to aid this object, which we have several times urged, that the foregoing list of Dr. Darlington, as numbered, shall be taken as the commencement and ground-work of a general list of synonymes of the grasses and *weeds* of agriculture in the United States; and that other persons shall add to, or correct these and any subsequent descriptions, by reference to the botanical names and numbers here, or hereafter used—and that other grasses and weeds, as presented, be numbered in order, as a continuation of this list. It will not only be botanists and scientific men only who can aid this work essentially, but also those without any knowledge except such as ordinary careful observation would supply, added to acquaintance with the particular plant under consideration. It will also add much to the usefulness of such a list, if the peculiarities and character of each plant, as affecting agriculture injuriously or otherwise, should be stated. Even if such descriptions are to be found in any existing 'Flora' or other botanical work, they would not be there sought for by unlearned inquirers.

In furtherance of this proposal we will offer here a slight correction in regard to one name in Dr. Darlington's synonymes, the "wire-grass" of Virginia, which he supposes to be the same with the "wire-grass" of Pennsylvania, or "blue grass" of Pennsylvania and Virginia, (2. *poa compressa,*) but which is in fact his No. 11, *triticum repens,* or couch grass of England.

This grass prefers dry and light soils, and will scarcely grow except where there is enough of lime to constitute a good and fertile soil. Thus it is one of the most sure indications of a well constituted and improvable soil, whether made so by nature or by art. On the acid and naturally poor soils, best adapted to produce sorrel, poverty grass, broom sedge, and pines, wire-grass will rarely if ever be found, and never can be a troublesome weed, no matter how much putrescent manure is applied, and temporary fertility thereby induced. But if the land be made calcareous, by marling, or by the ashes deposited in the course of

time around old dwellings, this grass will be sure to appear, and take possession of the ground, unless great care be used to restrain its production. To eradicate it effectually, on its favorite soils, is almost impossible. It extends its growth not only by its seeds, like other grasses, but still more by its long running or jointed superficial roots, which stretch several feet from the parent stock, and striking in new roots from every joint, commence at each place a new growth. Every joint of these runners, when broken or moved by the plough or harrow, if covered by earth, becomes a growing set, and new source of supply. The vitality of the roots, even after being taken out of the earth, is remarkably enduring; and they have been known to live and grow, after exposure to dry air, or long immersion in water, which had been deemed certainly destructive. This grass was (and still is) the great pest of Weyanoke, the highly improved farm of the late Fielding Lewis, on James river. And while that admirable farmer and improver carefully saved every other material for manure produced by his land, he removed and threw away the enormous amount of wire-grass roots which he had every year to get out of his ground, lest he should increase the evil, if using them as a material for manure. The running roots abound in saccharine matter, and must contain much nourishing aliment for animals, as well as enriching manure for land. The proportion of roots is enormously large, (perhaps greater than all the growth of the grass above ground,) and therefore the loss of value as well as the amount of labor, in removing and destroying them is very great. There would be few discoveries more valuable to improving farmers, than to learn how to subdue this grass, as a weed, economically, and to utilize its undoubtedly valuable material, when necessary to be subdued.—Ed. Farm. Reg.

CULTURE OF INDIAN CORN.

To the Editor of the Farmers' Register.

Essex, Feb. 20th, 1841.

As the time of planting corn is near at hand, I will venture again to offer you a few more remarks on this most useful of all the grains at present known to us. And this I will do, even at the risk of being deemed by yourself and your readers, as quite hobbyhorsical on this subject. All, I believe, will agree that there is much yet to be learned in regard to it; and that corn-growers, especially, should ever be willing to encourage every inquiry, the object of which is to ascertain, as far as practicable, what are its distinctive qualities, and what its proper culture. Of this grain we have already a considerable number of varieties, and these are increasing every year. It becomes, therefore, more and more important to determine which of them all is intrinsically best, (if any be so,) in all the three particulars which render one kind more valuable than another; to wit: greater productiveness per acre, greater weight per bushel, and superior nutritive properties per pound. None, I presume, will deny that the variety which is found to possess most of these three qualities, (if any does,) is justly entitled to be preferred to all others. So far, I believe, there is no difference of opinion among corn-growers. But when they come to decide between the various kinds, we find almost as many opinions as there are disputants. Opinions, too, which, unfortunately, are very often maintained—not with that calm, investigating temper, which is indispensable in the pursuit of truth—but with a degree of dogmatism, petulance, and obstinacy, that would be disgraceful even among squabbling children. Each of these wranglers has his favorite, whose claims to superiority he often urges with as much warmth and vehemence as he would use in a political party controversy; although he may not be able to state a single fair experiment that he has ever made to support his opinion. There is only one thing in which they can agree, and in which I think I can prove that they are perfectly right. This is, the belief that there is a great and radical difference between the varieties in all the qualities of productiveness, weight, and nutrition.

There are, however, some few corn-growers, I believe, who maintain, that there is no essential difference in the productiveness of the different varieties of corn: in other words, that if one kind is ever found to measure more than another, the difference is ascribable to soil and climate, rather than to any innate qualities in the varieties themselves. To support this opinion I have searched, but in vain, for the citation of even a single well conducted experiment; and am therefore compelled to attribute the maintenance thereof to that fondness for odd notions which some men seem to take a most unaccountable and singular pleasure in avowing. To these may truly be applied the old rhyming couplet,

> "A man convinced against his will,
> Is ot the same opinion still."

None, therefore, of the following remarks are designed for them; as it would be quite presumptuous in me to attempt what so many better farmers than I am, have failed to achieve. But believing, as I do, that a vast majority of us are both willing and anxious to learn from each other whatever may increase our knowledge of the various things connected with our profession, I will proceed, for their sake, to state my experience in regard to ten or twelve different varieties of corn, with which I have been busily engaged, for some years past, in making comparative experiments. All these kinds were in high repute in the parts of the country from which they were procured; and the result of my various trials warrants me, I think, in asserting that there is an innate difference between the lightest, and the heaviest, a difference little if at all affected by soil and climate, of at least, ten pounds per bushel, making fifty pounds per barrel! and an average difference in productiveness per acre of not less than fifteen per cent. This is not mere matter of opinion, but proved by actually weighing and measuring the varieties

compared together. The lightest kind is the pure gourd-seed; the heaviest is the white and yellow flint, which is cultivated chiefly in the northern and eastern states, where the large southern corn will not ripen before frost. The most productive variety has proved to be the twin-corn, after a trial of five years, during which it was fairly compared, each year, with two or three other popular kinds, until the whole number mentioned above had been subjected to comparison. On each occasion there was no guess-work, no striding off the ground, no conjecturing the contents of cart-loads; but the surveying tape, and the half-bushel were used in every case, and the number of corn-stalks accurately counted. I had no pet-corn among them, but was anxious only to ascertain the best, for profit's sake. As a proof of this I will here state, that I am still desirous to make a trial of every new variety I can hear of, and have the promise of two or three for the coming spring. My own experience in regard to the superior productiveness of the twin corn, which weighs as much as any of our large varieties, and is heavier than most of them, is confirmed by several gentlemen with whom I have corresponded on the subject, in Maryland, and several different parts of my own state. Moreover, I have the authority of two reputable millers for saying that it produces more meal from an equal measure, than any kind, out of several, with which they have yet compared it. The other advantages which I myself have ascertained that it possesses, are, that it may be planted about six inches closer each way; that it will ripen about ten days or a fortnight earlier than any of the large varieties usually cultivated in the tide-water part of Virginia; and having a much smaller cob in proportion to the grain, will measure more to the bulk. I can speak only conjecturally in regard to the respective quantities of nutrition contained in the different kinds of corn of which I have made trials, having no apparatus by which to analyze them. But if the nutritive properties in each variety depend on its weight, still the most productive per acre should be preferred for a crop, unless the excess of nutrition in the heavier kinds exceeds that in the lighter, considerably more than the productiveness of the latter surpasses that of the former; for we should take into the account the extra quantity of food for stock yielded by the most productive kinds.

But some still think it most profitable to cultivate the yellow varieties of corn, even admitting they produce less, because they command from 3 to 5 cents more per bushel, in the northern markets, than the white. Now, if either of the white kinds yields 15 per cent. more on an average, than the yellow, (and I have proved by several accurate trials, that the twin-corn does so in our climate, over all with which I have compared it,) then is it perfectly easy to demonstrate, that he who cultivates a crop of twin-corn will sell it for more at the usual prices of the white kinds, than he could get for a crop of yellow, made on the same land, even if sold at 5 cents a bushel more. Suppose, for instance, that an acre produces 20 bushels of yellow corn. This, at 55 cents per bushel, would bring $11; at 65 cents $13; and at 85 cents $17. The same acre in twin corn would have produced 23 bushels, which at 50 cents would bring $11.50;—at 60 cents $13.80; and at 80 cents $18.40 cents; the superior profit, in each case, being greater in proportion as the price per bushel was higher.

Another great mistake about yellow corn is the common notion, that it is generally heavier than white. The weight, however, of any kind depends not upon its *color*, but its *flintiness*, of which quality some of our white varieties have as much as any of the yellow kinds that we cultivate, and consequently are full as heavy.

Should any of your rearders suppose that I claim for Indian corn a higher rank among our various grains than it is justly entitled to hold, I will conclude this communication by referring them, first, to the opinion of the late Professor Cooper of South Carolina; and next to the recent census of Eastern Virginia. The professor asserts in his 'Emporium of Arts and Sciences," (a very valuable work, now, I believe, out of print,) that "it contains more nutritive matter than any other grain." And then he proceeds to say, that "the greatest quantity of nutritive matter, under the least weight, can be put up in the form of bacon-fat, moderately salted, to be eaten with "*Tossamanonny*," which is an Indian name for "Indian corn just ripe, parched to a light, chocolate or brown color, and ground to a powder." The whole article is highly instructive and interesting, especially as regards the economy of food, and its effects upon the health of both man and beast; but it is too long to copy.

My reference to our late census will show a vast difference in the quantities of the various grains which we cultivate, and thereby affords a still more conclusive proof of the superior value of Indian corn, when compared with any one, or the whole of them. Here is the item to which I refer. "No. of bushels of wheat 4,825,851;—of barley 5,449;—of oats 7 649,592;—of rye 382, 433; of buck-wheat 26,785;—and of Indian corn 21,756,87d." Even this statement, as large as it may appear, falls short of the truth, for we are authorized to say, that "in several of the counties, answers were altogether refused to the questions relating to products."

I remain, dear sir, yours, very sincerely,

JAMES M. GARNETT.

N. B. From what I have said of the twin-corn, I shall hardly escape being suspected by those who never themselves do any thing from disinterested motives, of seeking to *Thorbornize* them. But I hereby notify them that I have none to sell at any price. If, however, the perusal of this letter should excite a wish in any person to buy, I am almost sure they can procure what they want at reasonable rates, from any one of the following individuals,—Mr. J. Gouldin of Caroline, Mr. J. Dericaux of Essex, Dr. Braxton of King-William, and Mr. Lewis Berkley's agent in the same county.

DAMP STABLES.

From the New Genesee Farmer.

A correspondent of the Farmers' Cabinet states that on taking possession of a newly purchased farm, his horses became poor, diseased, and incapable of labor; his cows became sickly, their milk di-

minished, their butter became bad, four lost their calves, two died of scours in spring, with other attendant evils. The dampness of the stable which was built under large trees in a low situation, and with a northern aspect. It was immediatly torn down, and another erected on a drier situation, when, as was expected, all these evils vanished at once. Stables made of stone, are more liable to this difficulty.

EXPERIMENTS WITH AND OBSERVATIONS ON GREEN-SAND EARTH, AS MANURE, ON COGGIN'S POINT FARM.

By the Editor.

At various times and in various parts of the Farmers' Register, I have offered my uncertain opinions on the interesting, and as yet obscure subject of the operation and effects of green-sand as manure; and have expressed my dissent, (as to the effects already produced, or possible to be produced, in lower Virginia,) to the received opinion that this manure, used alone, is either generally operative, desirable, or at all profitable on the far greater number of soils in this region. These opinions of mine, (singular I believe, and certainly not at all sustained by any concurrent views or declarations of *geologists,*) were put forth more at length than before in No. 11 of the last volume; but still only in general terms, as was proper in that case, my remarks there being but introductory to the very different practices of a particular region, remote from and very unlike to the scene of my own experience. I have sought for years to obtain the facts, and to have the experience, of practical men on this subject, so as either to confirm or disprove my own opinions. But these efforts to induce experiments, and to elicit the results of any observations already made, have been fruitless, except as to the few interesting facts stated of the practice of Dr. Corbin Braxton and Mr. Williams Carter, in the number just referred to. I am therefore induced to present, more particularly than before, the circumstances of such of my own experiments as were written in my private agricultural journals and memorandum books, together with the general results of more extensive practice; which general results, though not then recorded, are well remembered, and were too important to be either forgotten or mistaken, inasmuch as they concurred to disappoint the sanguine hopes before entertained of expected profit from this source.

Knowing that general statements of results are much less satisfactory than the precise facts, or the deductions from facts, whether mistaken or not, as written down at or near the times of occurrence, I will copy the memoranda as entered in my farm books, which were written merely for my own use, and were never expected to be brought before the public eye. These entries will probably seem unimportant and tedious to the reader; but it is hoped that their being presented will be excused, as furnishing the best testimony that I can now offer; and also the best check upon my present conclusions, when they vary from or oppose those made at a much earlier date. They will be copied without the slightest change of purport, either as to facts or deductions, even when a change of opinion has since occurred. Immaterial passages only will be omitted or abridged, and the worst of verbal inaccuracies be somewhat corrected in form of expression.

But such as they are, these records of experiments, and deductions therefrom, may be almost considered as testimony coming from a different source than the present writer, inasmuch as he formerly entertained opinions, and sanguinely hoped for effects, different from, and altogether surpassing, such as would now invite and direct his practice. And therefore, he was full as likely to be deceived formerly by his high hopes and too easy faith, as now in the opposite course, by opposite opinions.

In the early part of the first volume of this work, (beginning at page 207,) was given an account of my having discovered the extensive beds of this remarkable earth on my farm and elsewhere in Prince George county, as far back as 1817, with a minute description of its peculiar appearance, and the locality along the banks of James River; and also the general results of my practice with it as manure. Also, there (and afterwards in the same volume, upon more full information and examination of the "Jersey marl,") I pronounced that the earth I had discovered was, as a manure, identical with the celebrated "Jersey marl," which geologists call green-sand.*

Now, although from the few facts then known, I had made this main and most important deduction correctly, (as has been since abundantly proved by the observations of geologists, and now universally admitted,) that *this earth is the same manure as that of New Jersey*, still I was misled, by my ignorance, in other respects. In the first place, I had then not even so much as ever heard of the term "green-sand," which has latterly become, through geological reports, as common as "house-hold words." In the next place, knowing nothing of "*green-sand*," and having found gypsum diffused in many parts of the bed, and little or no carbonate of lime, (generally, not even a trace of it,) I erroneously ascribed the fertilizing effects, when exhibited, solely to the presence of gypsum;—and my practice was directed accordingly, and the results were judged of upon that erroneous supposition. And under this mistake, I applied to the bed the term "gypseous earth," and supposed its value, as manure, to be in proportion to the gypsum contained. Nevertheless, and notwithstanding these errors of ignorance, the appearance of the bed was so described that it was *impossible for any one to mistake its true character who knew any thing of the green-sand earth in New Jersey or elsewhere.* For more full explanation on all these points, the reader is referred to my original article on this subject, written under these circumstances.

Eleven months after my extended publication above referred to, and eighteen years after my having discovered the bed, Professor William B. Rogers announced through the Farmers' Register (page 129, vol. 11,) his "Discovery of green-sand in the calcareous deposite of eastern Virginia,

* I shall not, (unless required by any circumstances which may hereafter occur,) fatigue the reader by quoting the various passages above referred to. But if any one be curious on the subject, he may see, in the long general article referred to at page 207, and also in others at pages 272, 273, 775, vol. i. and 155 vol. ii, abundant grounds on which to decide upon any conflicting claims to the first discovery of, and publication describing this earth, in Virginia.

and the *probable existence of this substance in extensive beds near the western limits of our ordinary marl.*" No one, except the writer of that communication, could have been more gratified to see it, than I was; and no one then entertained more respect for the authority than myself. I was rejoiced to see scientific research at last directed to this very interesting and obscure subject, to which I, in vain, had so long attempted to call the attention of the learned. It announced truly a "*discovery*" of green-sand being found intermixed in greater or less proportion with many of the calcareous marls of the lower part of eastern Virginia; and besides that additional fact, I was indebted to that communication for my first knowledge of "green-sand" being an ingredient, and the important ingredient, of the "Jersey marl," and consequently of the extensive bed which I had before described under the name of "gypseous earth."

At the time of *my* discovery of this, the extensive body of "gypseous earth," or "green-sand" as it is now more properly designated, I entertained the almost universal opinion that gypsum (plaster of Paris,) was of no use or profit in the tide-water region. That opinion was correct as to nearly all the soils and circumstances of that region; but, as I afterwards ascertained, was erroneous as to the few cases of *clover sown on calcareous or neutral and naturally good and fertile soils.* But this description would not extend to one acre in one million; and on all others, gypsum was either wholly inoperative, or not enough effective to be profitable. Not then knowing the cause of the very few exceptions, as I afterwards learned, I deemed the discovery of impure gypsum on my land as of but little account, except as a matter of curiosity, and as an interesting scientific fact. Still, I made many small experiments with some of the larger crystals pulverized, thus forming pure gypsum, and of course the results were in no respect affected by the green-sand, which formed a large proportion of the general mass of earth. These small experiments, however, being made mostly on clover, and on good soils, showed effect more frequently than had been expected, and the results strongly encouraged me to use the earth largely which contained the gypsum in small and varying proportions, as it does the green-sand largely and universally. Still, let it be observed that, for years after, my experiments and practice were directed blindly, without any correct view of where gypsum *would* and where it *would not* act; and, moreover, that my object was to apply *gypsum*, and not *green-sand*, of which I still knew nothing. But whether known, or sought, or not, this ingredient was very far more abundant in every load of earth applied, than the gypsum; and therefore every trial of the "gypseous earth," or of gypsum in that earth, was also a trial of "green-sand." And though, when producing good effect, it might be considered doubtful to which of these substances to ascribe the benefit, or how to award to each its due share of the effects, still, when there was *no effect*, or when the early effect had ceased, it was not the less certain that the *green-sand* was then altogether inoperative. Thus, every experiment which produced no benefit, or but a transient benefit, was as full and fair a test of the power of green-sand, as if that substance had been applied without any gypsum.

Another preliminary remark should be made. Having found benefit in many experiments, from applying a spoonful or two of pure gypsum to small spots, and that generally on clover and on good soils, I hastily and erroneously counted on such effects generally, and even in advance of my marling the acid soils on which I applied the green-sand or gypseous earth. Therefore, my false confidence and sanguine disposition made me expect benefit, and to construe all appearances in the manner most favorable to the operation of manure; and thus, as was natural, whenever I erred in opinion as to results, it was rather in favor of, than against the degree of effect produced.

Some of the earth used contained a large proportion of gypsum, (mostly finely divided,) perhaps from a tenth to a sixth of the whole mass. But, generally, the large applications were much poorer in gypsum—usually containing not a twentieth, and sometimes, perhaps, none at all. Of the green-sand I do not pretend to estimate the proportions, with any accuracy; but judging by the eye, I suppose that it must have constituted not less than from 20 to 30 per cent. of the mass. There is a much richer stratum below, containing (as Professor Rogers reported) 60 to 70 per cent. of green-sand, and of which I made one careful experiment only, and the last. But though the parts of the bed poorer than this in green-sand were generally used, (because containing gypsum in more abundance,) still, from the heavy quantities of the earth generally applied, there must have been usually plenty of green-sand laid on. These remarks the reader is requested to bear in mind; and to remember, also, through the following notes, that when "gypseous earth" or "gypsum" is mentioned as the manure, it is the *green-sand earth* which is always referred to, and containing a much larger proportion of green-sand than of gypsum.

I shall pass over all my experiments made with pulverized crystals, as they were with gypsum alone, and had no relation to green-sand, though, at the time, I considered the acting power to be the same. The following extracts from my old journals and memorandum books, for the Coggins' Point farm, will present every entry there made, and omitting nothing that bears upon the result, or conclusions thence to be drawn. For the convenience of after-reference and designation, the experiments and observations will be here numbered, though not so marked before. Any words now added to the quoted extracts, for explanation, will be enclosed [thus] in brackets.

I. "10th [January, 1818.] Three acres of new-ground were plastered at the rate of 7 or 8 bushels to the acre with gypseous earth, from the river bank near the meadow."

Oct. 1818. "No benefit derived."

This was poor acid soil, and not then marled. The land was part of that which was the subject of (subsequent) marling experiments, 1, 2, 3 and 4, stated at pp. 37 to 40 of 2d edition of 'Essay on Calcareous Manures.' This green-sand earth was far from being rich in gypsum. The crop (1818) was corn.

II. I remember that on another part of this ground, same year, this earth was applied, at planting the corn, a handful to each hill. Also, the remnant of the cart-load was scattered around very thick, broadcast—some of which was certainly as thick as 500 bushels to the acre. No ef-

fect was seen, on that crop, (corn,) or any subsequent crop.

III. 1818. "May 1st. Carted and sowed gypseous earth in small quantities, on various parts of my land. Most of the places are in clover."

"June 7th. Observed a remarkable effect produced by the gypsum [meaning the gypseous earth, or green-sand,] put on clover in Finnie's field, May 1st. Soil, a light calcareous loam, near the river bank."

As this is the only case mentioned of effect being seen this year, it may be presumed that it was the only case of effect, on the "various spots" tried. I remember nothing more of them than what is here stated.

IV. "1819. March 19th. Two acres of a point of Finnie's field marled at from 50 to 25 loads—one load of gypseous earth had been previously well mixed with every 30 of marl, except for the two middle rows. Six bushels of the same [gypseous earth] sowed on three-quarters of an acre without marl. Land in clover, and more infested with sorrel than any on the farm."

"Result. May 8. Decided benefit from the gypseous earth, the clover being 50 to 100 per cent. better; on that sowed by hand, [the clover] quite regular—that applied by mere mixture with marl is unequally distributed. The effect here is as striking on partridge pea as on the clover."

V. "May 10. Sowed gypseous earth on all that was not before plastered." October. "No effect."

This land, though so full of sorrel, was not naturally a very acid soil. It was light, dog-wood and hickory land, and at first very productive. After bringing one crop only, after being cleared, (because then surrounded by wood, and therefore the corn exposed to the ravages of vermin,) it was left out, and covered by a very thick growth of young pines, which were afterwards cut down, and left to rot on the ground; and which covering, no doubt, produced most of the sorrel. The product in corn was then about 20 bushels.

VI. "1819. March 12. Ploughed two acres of open part of the grove, (among large oaks,) and sowed clover seed.

"May 10. Clover came up very thick, and stands well. Sowed on it 9 bushels of gypseous earth. Good rain the following night."

"Afterwards [the clover] destroyed by grazing. Some little remained until 1828, and never showed any effect of gypsum."

This soil was a moderately stiff clay loam, and rather poor.

VII. "1819. May 10. Sowed 9 bushels of gypseous earth on the clover not before plastered on the point of Finnie's, on which experiment [marked here IV] was made. Two small spots left out. A heavy rain the night after.

"Sept. 2. No effect this year." "Nor on the corn in 1820, or the wheat in 1821."

VIII. "1825. Two rows of cotton (House field,) had a small handful of gypseous earth thrown on each parcel of seeds, before covering. Rows passed through rich calcareous high-land, (site of the old negro-houses,) newly marled land, and low-ground. No perceptible effect."

IX. "1819. Jany. One ox-cart load of gypseous earth was strewed on about half an acre of the Point field just before ploughing: (about four bushels of pure gypsum per acre:) soil calcareous, dark loam, rich enough to produce four to five barrels per acre; had been grazed, but was still covered with a good growth of vegetable matter.

"Result. June 2d. The plastered corn is from 50 to 100 per cent. better than the adjoining, and the spot easy to distinguish at the distance of 200 yards.

"Oct. 15th. The difference gradually became less until the corn was ripe, when there was still an apparent difference of 25 or 30 per cent. A square of the plastered corn, 16 by 17 corn-hills, and the same quantity adjoining of unplastered, were to-day gathered and carefully measured: the latter produced three bushels of shelled corn, and (to my astonishment) the former only one peck more, or about 8 per cent. The growth of the corn was by the plaster made much more rapid, the plants much more luxuriant, and the size of the stalk and shuck is *now* evidently much increased; and yet there is scarcely any increase in the grain. Seasonable weather until Aug. 1, then severe drought. Aug. 27, heavy rain, which, of course, was beneficial according to the *backwardness* of corn."

X. "1819. On poor, light, acid land, marled previously at the rate of 800 bushels of poor marl (25-100) to the acre, 4 acres were sowed with gypseous earth at the rate of 20 bushels, and one acre at 10 bushels. On another part of same field, of somewhat better land, and which was not then marled, a quarter acre was covered at the rate of 40 bushels of gypseous earth to the acre. Planted in corn, 1820."

The marl had great effect, "The gypseous earth had not the slightest effect, [nor was any certain on any after crops of corn or wheat. No clover sown. In 1824, the corn on this part of the field was the best; but the marks had been lost, and no outlines could be traced; and therefore the better growth might or might not have been caused by the gypseous earth.] Season very favorable; enough rain, and never too much."

XI. "1820. Feby. Eight bushels of gypseous earth strewed on a quarter acre of very light, free land; had borne only two crops since being cleared. In corn. No effect. Nor on the wheat, following—nor on the little clover that stood."

XI. "1820. Feb. 24 bushels strewed on new-ground [3d. Div. of South Field] soil, cold poor whitish clay. In corn. No effect." Nor on the wheat succeeding. No clover sown here on the wheat.

The field in which both the last were, was well marled in 1823, fallowed, and in wheat in 1824. In 1825, I was surprised to see a fine growth of clover, 18 inches high, from the remains of seed sown in 1818, and which produced scarcely any visible growth before. No effect of the gypseous earth could be seen on this fine growth of clover. But on another part of same field of cold clay soil, where some of the gypseous earth had been spread two years before, a great effect was evident on the clover. This had been marled also in 1823.

At the close of the year 1819, notwithstanding the predominance of failures, I still had hopes of gypsum (*i. e.* the gypseous or green-sand earth) being profitable on my land. In some remarks at page 37 of my Farm Journal for 1840, I expressed the intention of following wheat by clover generally, "if I find gypsum and clover to equal my expectations." No other gypsum had then

been used by me, except in very small experiments made with pulverized crystals obtained from the same beds of earth. I had not then learned, as I did afterwards, that the cases of successful operation were almost entirely confined to clover, and that on calcareous soils. I used the gypseous earth largely for two or three years, in a way that I could not judge of its *separate* effect, and since, I have been satisfied that it thus had no effect. This was, mixed with the general mass of farm-yard and stable manure. From no application of this kind did I see afterwards any effect, even though on calcareous or marled land, (as my farm-yard manure was always then applied,) neither on the corn and wheat, nor the clover, when clover was sown afterwards. The use gradually ceased, until renewed in 1827. The recommencement of notes thereon was in 1828, in my experiment book for that year. After referring to the entries, quoted above, for previous effects, these introductory remarks to later experiments follow thus:

"The general want of success, together with the belief of that I have very little of this manure, [meaning such as contained gypsum,] made me defer using it until I had clover growing to apply it to; and that crop I have found it impossible to raise (at least to any profit,) before the land is marled. In 1825, the results of old experiments [numbered XII.] encouraged me again to try clover; and finding a better supply of gypseous earth [that is, showing gypsum present] in 1827, made me also proceed to its more free use. I shall begin again to write down my recent experiments, at the time, or soon after their being made. I shall also in some cases state results of old applications, where the facts are such as it is impossible to mistake."

Next follow experiments stated minutely, and too much at length to be quoted here fully, and therefore extracts will be made, and the general and important circumstances only will be mentioned.

XIII. In 1827, 195 heaped bushels of greensand, or gypseous earth, (of a new body, of limited extent,) supposed to consist of one-sixth of pure gypsum, was mixed with the farm-yard manure, and with that laid over 14 acres of light loam, marled in 1819 and 1823. No effect on the corn, or wheat, or clover, that could be ascribed to the green-sand—or other than the manure and marl were supposed to have produced. The failure of "this and all similar applications [this having been done largely for several winters] induce the belief that there is some chemical product of fermenting farm-yard manure that entirely destroys (or decomposes) gypsum—and which has prevented my receiving any benefit from any mixture of gypseous earth with manure, which is the mode I pursued with it generally until lately. If the process of fermentation produces *oxalic acid*, such a decomposition of the gypsum would take place."

XIV. 1827. February 21st, 145 bushels of the same earth strewed by hand over 8 acres of a naturally rich black loam, neutral soil, and parts slightly calcareous. In cotton. In June a manifest benefit. I was absent from July to October, but my overseer reported that there had been considerable effect visible on the growth. When I returned, not much difference could be seen, as the leaves had dropped, and all the open cotton pods had just been picked over.

XV. 1827. March—80 bushels of same earth spread by hand on 5 acres of cotton land. No effect that year, or the next, when again in cotton. This was land not long cleared, formerly a poor acid soil, a pine and whortleberry ridge, but well marled. (Same soil as subject of experiment I.)

XVI. and XVII. Two other experiments, same year, on clover on another part of the same field, and similar soil, but of land long cultivated—24 bushels to the acre, in different spots, where yellow marl had been used, and 6 bushels on blue marl, applied in 1822. "The benefit on the first was generally, but not throughout perceptible; on the last it was very evident."

The next note records the most remarkable effect I ever saw from this (or any other) manure—and which experiment also furnished subsequently the strongest proof, by the short duration, of the fleeting nature of the effects.

XXIII. "1827. March 22d. About 20 bushels of gypseous earth laid on wheat and young clover. Soil, dark rich loam, part originally shelly, and the balance lately marled from a thin muscle shell bed, dug near the spot. This quantity was ordered to be sown on an acre; but was, by careless spreading, put on much less land.

"*Result.* Adjoining the loads [where the earth had been left thickest,] very great improvement on the clover seen during harvest, June, 1827. None on the wheat.

"1828. February 28th. Some of the same, as well as more of the adjoining land, (from not knowing the position of the former sowing,) was sowed again at the rate of 20 bushels to the acre.

"*Result.* April 3d, 1828. The first application is now evident enough, and the effect greater than any thing ever before seen. The thickest manuring has done no harm.

"1829. June. The great effect continues, and the same, in a less degree, is found on the adjoining land, marled last year—making, on a piece of between one and two acres, the heaviest growth of clover I ever saw. It was mowed last year for hay, and grazed in the fall, and has mostly been mowed again last month for green feeding. The adjoining clover not gypsed, and on like land, is so thin and low as not to be worth mowing."

In reference to the same experiment, the following remark is made in my Farm Journal (vol. 3.) "The greater the quantity of the earth applied, here and elsewhere, on like soil, the greater the effect—and on the naturally shelly land here, it is better than on the artificial."

When mowing this clover for hay, May 31st, 1828, the following remark occurs in the farm journal: "It was all lodged, and the mowing was very wasteful, as well as troublesome; yet it still is so succulent and tender, and seems so *late*, compared to the other clover, that the appearance would indicate that it was mowed too early."

XIX. "1827. Five bushels of gypseous earth put to a quarter acre of corn, in the hills at time of planting. Hilly gravelly land, long cultivated and much reduced. Had been marled in 1823. No benefit."

XX. 1827. In the field for corn, and on several different soils, not originally calcareous, but marled, 20 bushels of gypseous earth used in different experiments. No effect produced.

XXI. "1827. Five bushels of gypseous earth sowed broadcast on 40 yards square of Pewter Level new-ground, which had before been marled at the rate of 700 bushels [of blue marl] to the acre. Soil, whitish clay, very close and intractable, and very poor. In corn, and again in 1828, and wheat in 1829. Not the least effect of the gypseous earth on either." This land is of the remarkable soil, described in chap. x. of 'Essay on Calcareous Manures,' and which I believed to contain sulphuric acid before being marled. Of all the trials of gypseous earth made on different parts of this kind of land, whether before marling or after marling, not the slightest effect was produced on any crop; yet, after marling, and without gypsum or green-sand, the next succeeding crop of clover was wonderfully luxuriant, though the land was still poor; and no subsequent crop of clover has ever equalled the first (after marling,) even when the land had been made much richer. If sulphuric acid (or sulphate of iron) be present, as I suppose, in this miserable natural soil, then it will account for the first state of sterility, and also the great growth of clover after marling, and the non-effect of gppsum then as before. For the sulphuric acid is taken up by the lime, and the union forms gypsum, and in such great quantity, that no additional quantity can do any good. This however does not account for the inefficacy of the green-sand; unless in this respect, as it seems to me in all others, the action and effects of the green-sand and gypsum are precisely alike.

XXII. The Farm Journal for 1829 refers to the several experiments stated here as made in 1828, and adds—"generally there was not the slightest benefit found during last year from any application [of greeen-sand earth] made in the spring of 1828; though some of them show remarkable difference this year." [From the use of the word "some" it may be inferred that the greater number of applications were altogether inoperative, even the second year.] "No benefit has been found from the gppsum [green-sand ear h] put on the new land of Court-House field, which was ridge pine and whortleberry acid land, [the subject of first 4 experiments stated in 'Essay on Calcareous Manures' and I. and XV., here] whether on corn, wheat, or clover, (for that rotation,) though tried very thick as well as thin, and after, as well as before marling. However, there were some spots of remarkably rank volunteer clover, last year, where clover had been sown and gypsed without benefit, 4 to 6 years before." On this land, green-sand earth, containing a considerable proportion of gypsum, was afterwards put on clover, at the rate of 20 bushels to the acre. The effect was very unequal; but a part of it made as heavy a growth of clover as I ever saw.

To show the high expectations entertained of the improvement by means of gypseous earth, or green sand, induced by the remarkable effects in some cases on clover, I will copy an entry from my Journal made June 12th. 1828. After stating that 42 acres of good clover had been mowed, it is added—"This crop of clover, the like of which has never before been made on high-land in the tide-water district, is highly gratifying, and goes far to console me for the evils which the operating cause, marling, has produced on my grain crops [by excessively heavy dressings.] It opens a valuable prospect of improvement from my plaster beds, which have only lately been used to any extent, and which I deemed almost useless, (for my soils) for years after I had discovered the existence and value of this manure, in this neighborhood. Most of my mowing was where *gypseous marl* had been used, from 4 to 8 years ago; and *but little other clover on marl from other pits, was worth mowing.* This season, however, has been remarkably favorable to the growth of clover."

This reference to *gypseous marl*, and its peculiar value to clover, requires an explanation which will serve to throw additional light on the subject of green-sand. What I called gypseous marl here, and also in the 'Essay,' is the only *eocene* marl on my farm, and is the overlying stratum of the bed of green-sand, and which was, undoubtedly, from every appearance, originally the same calcareous marl. This kind of marl contains, besides its calcareous ingredient, a small proportion of gypsum, and also some green-sand. This is the bed lying under the extremity of the promontory of Coggins Point, and which has been used by Collier Minge, Hill Carter, and some other farmers across the river. The peculiar benefit produced to clover, in *every* case, by this kind of marl, was to me one of the strongest proofs of the value of gypsum, when accompanied by marl—and the value which I thus ascribed to gypsum perhaps as much belonged to the contained green-sand, of the presence of which I then knew nothing.

XXIII. "*Gypseous earth and clover on marl-burnt land.* 1828, Feby. 28th. about 6 or 7 acres of Finnie's field, which (after resting and not being grazed for 2 years) had been ploughed well in December last, mostly 7 inches deep, now sown in oats, got in by twice well harrowing, and clover seed sown, 3 quarts to the acre. Before the harrowing, gypseous earth spread, 20 heaped bushels to the acre; 20 feet width of the whole length left without the gypsum. This piece of land includes part of the marling first cultivated on in 1820, which in 1824 caused great injury to the crop by its excess. [Subject of experiment 10 in 'Essay on Calcareous Manures,] but principally is of the part marled as heavily in 1824, and which therefore might be expected to show as much injury this year, if cultivated in corn. "Soil sandy and part gravelly, and very poor before being marled, which had greatly improved the first crops.

"Result. The oats were bad, owing probably to the bad preparation. The clover was too thin—and not the least effect seen from the gypsum."

"1829. A great change by May 1st; and by June, the effect of the gypsum was evident wherever applied; and a most striking inferiority in the strip of 20 feet width. Upon the sites of the former heaps, where careless spreading had left the gypseous earth much thicker, the clover is much the best; and in this manner the position of most of the heaps (which were a heaped bushel each) may be known. The crop of clover was too thin to be worth mowing scarcely, and, if otherwise, it would have been left to improve the ground which so much needs it. But some of the best spots of clover, produced as I thought by the heavier dressings, were so rank as to lodge,

and proved the possiblity of excellent clover being made on the whole piece, and perhaps the whole [both poor and marl-burnt] field.

XXIV. "1828. March. Twenty-two bushels of gypseous earth sown on a dark neutral loam, which had formerly been marled with gypseous marl. On clover, sown spring of 1827. No *certain* benefit."

At another time, on this same field, and of similar soil, very great effect was produced on clover, by an application of gypseous earth.

Various other applications of this green-sand earth were made, and some of large extent, which were not recorded, and not accurately remembered, and which therefore will not be more particularly mentioned. No journal or notes of experiments were regularly kept later than 1828. But I cannot fail to remember correctly the causes of my final loss of confidence in this manure. The most remarkable effects stated of several of the experiments, as well as the slighter benefits elsewhere obtained, (and all of which would seem, *at this time*, if new, such convincing proofs of the great value of green-sand as manure,) all disappeared in a few years, and rarely could be distinguished on the clover of the next succeeding rotation. Considering, as I still did, that the effects were produced by the gypsum present, it seemed that these transient and uncertain effects would be more cheaply obtained by sowing the gypsum of commerce. This was then tried to the amount of 10 tons or more. But though gypsum seemed to act and to fail as the green-sand earth would have done, it is certain that the effects of the latter were greater than gypsum sown in the usual quantity of a bushel to the acre, or even thrice that quantity.

But though the green-sand and gypsum combined, and in large quantities compared to the gypsum of commerce, produced greater effect, yet, in every thing, except the degree of effect, the native and the purchased manure seemed to act precisely alike. My use of purchased gypsum alone has not been considerable, and the results have not been very carefully noted. But so far as may be judged from such imperfect means of comparison, I infer, from the foregoing experiments, and all the more extensive practice of which the results are not recorded, that the manner in which green-sand acts, whatever may be the cause, is similar to that of gypsum. And putting aside all such judging by comparison with gypsum, I may venture to affirm positively the effects of green-sand manure, on such soils as mine, or in this tide-water region, to be as was stated at page 682 of vol. viii. viz.:

"That, like gypsum, if used in small or moderate quantities, green-sand is only operative (or at least profitable) on neutral and calcareous soils; and rarely, even on these soils, on any crop except clover, and other plants of that family.

"That green-sand is *not* operative at all on acid or naturally poor soils, unless in unusual and excessive quantities; and then, or in any mode of application, that the manure is, like gypsum, but of temporary effect.

"And that, on acid soils, where it is least operative, after the land being marled (or otherwise made calcareous) the green-sand, like gypsum, generally becomes operative on clover."

And, in addition, that no matter how great the effect produced by green-sand, it will not be permanent, like marl, but temporary; and be at an end in the course of a few years.

These are the proofs I have to offer of my positions. I admit that they are too few, and have been limited to too narrow a locality, to settle the question. Let others who have experimented elsewhere in Virginia, present their results; and the comparison of all will serve to ascertain and establish the true and important facts, and withdraw the subject of green-sand from the region of baseless hypothesis, and fanciful speculation and unsupported assertion, to that of fact and truth, established by experiment.

It may be objected to all the foregoing experiments, as well as to all my more extensive practice, that in no known case was the green-sand used alone, or without the accompaniment of gypsum, the latter being the only substance then valued and sought.

This would be a fatal objection, if my experiments were brought forward to prove the effects of green-sand to be either general, or considerable, or durable, to even to the very limited extent which I admit them to be. For part or even all the effects which are shown above, *might* be attributed to the gypsum present, leaving none for the green-sand.

But it is no objection to the positions which I maintain. For, however little of the effects produced may be ascribed to the gypsum present, the remainder, or even the whole effects, will not show the green-sand to be more operative than I allow. It happens however that I know of *one* experiment made of green-sand without any admixture of gypsum, and which will now be stated. It was made with great care, and with information of the constituent parts, and with a view to the action of the green-sand alone; and several years after I had abandoned the application of this earth, as improfitable.

XXV. In 1835, when Professor Rogers was on a visit at my house, made, at my request, to examine these beds of green-sand, in addition to showing him all that I had before seen, or was visible at the surface, I had dug, for his better examination, a pit on the beach of Coggins Point, of 7 or 8 feet deep, in what he supposed to be one of the richest parts of my bed of green-sand. A specimen of this earth contained (as he reported) from 60 to 70 per cent. of pure green-sand. In all the earth dug out, there was no gypsum perceptible, or suspected to exist; and there were a few remaining, and scattered shells, but not enough to furnish any appreciable value as manure. The earth, which this pit furnished, was carried out, and spread, at the rate of 40 bushels to the acre, on young clover, on sandy soil formerly acid and poor, but marled 8 or 10 years before, and thereby much improved. The remainder of the piece was sowed with purchased gypsum at the rate of a bushel to the acre, except a broad strip between the green-sand and the gypsum, left without any. The gypsum produced a very decided benefit, and the green-sand, at first had still more effect. I kept no note of this experiment, and perhaps may not remember the degree of effect produced. I know however that it did not at all compare with the best effects which I had before obtained from gypseous earth on naturally good and calcareous soils; and further, after one course of crops, and the return of clover four years

nfter on the same field, I could not trace the position of either the green-sand or the gypsum, by any perceptible superiority of product.

If other farmers in Virginia, besides Mr. William Carter and Dr. Braxton, who have stated theirs, possess facts in regard to the use of green-sand alone, I trust they will make them known. And, what is still more desirable and important, for the elucidation of this subject, (which has been obscured rather than enlightened by all that *scientific* investigators have done for it,) it is requested of all farmers, who have it in their power, to try such accurate experiments as will fully test the truth of the opposite opinions held in regard to this manure. And if indeed I am mistaken as to its value, and the much higher geological estimate is more correct, I shall be rejoiced, not only for the general agricultural interest and benefit, but still more for my own private and individual interest and profit, which will be greatly advanced by establishing so great a value in this earth, which forms the inexhaustible sub-stratum of my own, and all the neighboring lands along James river. My personal interest is so deeply concerned in the establishment of the truth of the opinion opposed to that which I have long maintained, that I can scarcely be suspected of being unwilling to be convinced of being in error.

LIMING IN FAIRFAX COUNTY.

To the Editor of the Farmers' Register.

I told you in my last, that I had lost my crop of wheat from rust; I am now convinced that the many and heavy rains, co-operating with the lime I had given the earth, at the time of seeding the crop, was the cause of failure. This, however, did not deter me from moving on in the same line, and laying down the growing crop in perfect confidence of success, with this difference, that in place of the harrow for seeding, I used a two-horse plough, and turned in the seed and lime a good depth; it now looks well.

I am thought a sort of mad fellow as regards lime; but I am free to confess that after leaving the mountains and its spurs, (except alluvial land,) I would not take as a gift, 500 acres, if it be located where calcareous matter could not be had. We are told that blood is the life of animals; so I believe lime is the life of such grain and grass as the farmer desires. Most farmers seed less than half the grass seed that their true interest requires. Why is this? I am not surprised to hear that man will cheat his fellow man, and after it even go to prayers; but why should he cheat himself? I shall seed not less than two gallons of clover seed per acre, and pretty well of timothy besides, on strong wet land, knowing that with grass as with animals, the strong will prevail over the weak, where the struggle is for food. A good crop of clover every third year turned into the earth, with occasional dressings of lime and annual dressings of plaster, will soon give us land as good as any of the west, except their alluvials. I take it as granted by all farmers, that wet land should not be cultivated, and that his manure should be applied where it will bring him the greatest return. I was going to say something about cattle, sheep and hogs, but I shall pass those, with this remark, that I find it better to feed my land than any stock, except so many as are necessary for my comfort and that of my servants. LIME.

DIRECTIONS FOR KILLING THE CHRYSALIDES AND PRESERVING THE COCOONS OF SILK-WORMS.

To the Editor of the Farmers' Register.

As the valuable productions of the silk-worm may be rendered nearly worthless, after the ingenious insect has completed its work, I have supposed I might be useful to some of your readers, by furnishing for publication, some remarks, relative to the curing of cocoons, and their subsequent protection from the depredations of mice.

1. *Of curing cocoons.*—This work embraces, not only killing the chrysalides, but also the proper drying of the cocoons, to preserve them from injury when stored away. Whatever plan may be adopted for killing the chrysalides, its application must not be delayed too long. If the chrysalis is allowed to become a butterfly, (which occurs from 12 to 20 hours before it emerges from the cocoon,) it will be found impracticable to kill them with any *ordinary* degree of heat; and if that should be effected, it will avail us nothing, because the cocoon is rendered nearly worthless for reeling, as soon as the metamophosis from the chrysalis to the butterfly takes place.

"The juices of the silk worm seem to assume an acid quality, when that insect changes from the larva to the chrysalis state. At the moment of its escape from the latter to the butterfly form, it emits a reddish liquor, which reddens blue paper, and which was first attentively observed by M. Chaussier, of the Dijon Academy. He obtained the acid by infusing silk-worm chrysalides in alcohol, which dissolves their acid without being charged with any of the gummy parts of the insect; and, by evaporating the alcohol, the acid remains tolerably pure."—*See Lavoisier's Elements of Chemistry, page* 340.

The change, as before noticed, from the chrysalis to the butterfly form, occurs from 12 to 20 hours before the insect emerges from the cocoon; and at that time a portion of this reddish or brown acid is discharged, which penetrates the pellicle or inner skin of the cocoon, and at different points comes in contact with the external layers of silk fibres—rots it, and renders the cocoon of little value for reeling. Some have deemed this liquor to be an acid; but that it has the effect of rotting the fibres will not be questioned by persons having much practical knowledge of reeling.

The following plan for killing the chrysalides, I have pactised successfully for four years: About seven days after a considerable number of the worms begin to spin, all the tardy worms are removed, and furnished with accommodations in another place; and three days thereafter the cocoons are gathered, spread in layers of a single cocoon, on frames that will be presently described, and exposed to the rays of the sun by placing them *on the ground.* When the ground is dry, and the thermometer rises to 80 in the shade, I have never failed to kill them effectually in six hours. Last summer they were killed in two hours. If the ground is damp, it will require two

or three days. *Let it be remembered, that the frames must be placed on the ground.* A scaffold elevated two or three feet from the ground will not do. The frame is made of rough laths, three feet long and two wide, and a sheet of strong brown paper is pasted on it. A piece of lath is nailed across the middle of the frame to keep the paper from sinking. These frames will be found convenient for exposing the cocoons to the rays of the sun and also for spreading them for three successive weeks. *The cocoons must not be thrown into bulk earlier than three weeks after the chrysalides have been killed.*

2. *Mice.*—After the cocoons have been cured, (by which I mean killing the chrysalides, and airing for three weeks,) they may be placed in bags made of cotton cloth, to contain about two bushels each, and suspended by a strong twine to nails fastened in the joists. Mice will rarely if ever touch them in this situation. Some persons, as soon as the chrysalides are killed, pack their cocoons in boxes and barrels, and put them in the garret; and when they are subsequently examined, it is found that mice have taken up their abode among them, and destroyed all that had not been previously spoiled by fermentation.

LAYTON Y. ATKINS.

Stafford County, Va., Feb., 1841.

From the Mass. Agricultural Journal of 1824.

GRASSES.

By Hon. John Welles.

In the Agricultural Journal of January last, I offered some observations on grasses, and gave the result of an experiment showing their loss by exsiccation or the process of drying, in the summer of 1822. This subject has been pursued during the past season, and still farther extended. The variation, in the comparison of the two years is not, it is apprehended, greater, (except in one or two instances which will be explained) than will often occur from the nature of the soil, difference of season, closeness of vegetation, exposure to the sun, &c. &c. As far as a general principle may be established by experiment, it will, in some degree, go to fix the relative value of our natural grasses, as they prevail in our pastures, or of those artificial grasses which should be selected as fit objects of cultivation. In collecting these several species, I have found the natural grasses which generally prevail in this neighborhood, so few in number, that a short and yet sufficient description of them could be most properly first given with advantage.

The earliest grass we have is the Avena spicata (Linn.) or spiked oat grass. It is peculiarly indigenous to the United States, and grows, it is said, as far south as Georgia. This grass ripens so early that it mostly sheds its seed and thus reproduces itself, and is widely progagated. For this reason, as well as from its short growth, it is undeserving of culture, yielding little to the scythe. But it is of great value for early feed in our natural pastures, in which it abounds. One hundred pounds cut on the 15th July last, gave fifty pounds of hay.

The next grass which we shall mention is the Poa pratensis, (Linn.) with us falsely called red top, a color it never has. This, both in Europe and America, is the common and prevailing grass of the pastures. It grows in almost every soil and situation, and is one of those materials which, as that excellent botanist, Mr. Nuttall, of Cambridge, informs me, is used in Europe for the manufacture of bonnets. The color of its top, or panicle, is of a yellowish brown. The number of florets in the spike varies from three to five. The seed is sometimes saved and sown; but these fine spired grasses have so minute a seed, that, either from exposure to dampness and fermentation, or some other causes, which it is difficult to prevent or discover, they too often fail of vegetating, by which great injury and disappointment occurs in the wished for crop. Though this grass is amongst those which lose the least in drying, yet, as it presents little to the scythe, it cannot be recommended for culture. It is excellent in our pastures, and comes in naturally as the artificial grasses go out of our mowing lots. Indeed it has a preference with our farmers generally, for horned cattle, over every other grass. One hundred pounds cut July 17, gave forty-six pounds. It was past flowering.

The notice of our prevailing natural grasses might here be closed, but as the grasses which we shall next describe appear in our pastures, as well as our cultivated grass land, and are mentioned by several writers in answer to the question proposed by the society, as to "what natural grasses prevail in this part of the country," we shall give their description here.

The grass here called Rhode Island, is the agrostis alba, (Linnæus) the marsh bent grass of England, or the agrostis stolonifera, Schrader, German. Mr. Nuttall, to whom I exhibited a sample, pronounces it the famous fiorin grass of Dr. Richardson and the Irish agriculturists, on the authority of Hooker, who describes "the panicle thereof as purple, and the branchlets patent." The color, at first, of the branchlets is of a deep red, and they adhere closely to the spike, but as they flower they become patent and change to a lighter purple. This grass has six to eight branchlets, and flowers more fully than the Poa pratensis though often confounded therewith. It is amongst those which lose least by evaporation, and would be a more favorable object of cultivation, were it not liable to the same uncertainty as to its vegetating and producing a crop as the preceding grass, and from probably a like cause. In Ireland it is said to suit a wet soil, and to produce over six tons to the acre. In this country it does not flourish in such soil, nor does it give a great crop, especially compared with the herds grass. Still the hay is very excellent, and perhaps not exceeded by any other for its intrinsic value in nutriment. One hundred pounds in early flower, cut July 17th, gave forty pounds.

The grass, in the answer given to the society called Cambridge, dog and garden grass, is the triticum repens. Dr. Elliot calls it the "hurtful blue or Dutch grass." In England it is called couch, knot, or dog grass. Every joint of its root produces a new plant, and it is said to be there, as it is found here, one of the worst weeds and most difficult to extirpate. It resembles wheat, of which it is a species. The best mode to destroy it is to keep the lands longer under the plough,

with a frequent use of the hoe, as where this is not done, two years ploughing only not merely multiplies, but occasions it to engross the whole soil. It has a hard woody fibre and is disliked by cattle. It flourishes mostly near cow yards, and gardens, and is called Cambridge, from its abounding on the salt banks of the Charles river. One hundred pounds cut July 22d, in late flower, gave forty-eight pounds.

The grasses above described are those which prevail in our uplands, and are indigenous here. They are probably, most of them what Dr. Elliot, in his Field Husbandry, denominates English spear grass, and speaks of as natural to the soil and more hardy. The term English has been applied to our upland hay, ever since the settlement of the country. These, with the red and white clover, and the varieties which nature, in a course of culture, or otherwise, produces, are what give verdure and fertility to the face of the earth.

Of the cultivated grasses, the first in importance is the herds or timothy grass, phleum pratense (Linnæus.) Dr. Elliot says "it is a native, and early discovered in this country by a man of the name of Heard, in Piscataqua." It is doubtless admirably suited to our soil and climate, and not only flourishes in uplands, but may be sowed to advantage in low grounds, especially when drained or raised with gravel or loom. It often attains in height five feet, and has been known to produce over four tons to the acre. It does not yield much till the second and third years. For which reason it is sown with clover, which being biennial and of shorter duration, gives it space to succeed. In this vicinity, such is the preference given to it, that it sells at about one fourth more than any other hay. It lasts, with one or two top-dressings, six to seven years. The answers to the inquiries of the society as to the quantity of seed sown, are two to six quarts. There should not be less seed than half a bushel to an acre, which later experience establishes most decidedly. One hundred pounds cut July 11th, gave thirty-nine.

Red clover (trifolium pratense) is a most valuable grass: when cut green, it affords an excellent nourishment for cattle in the soiling process, as well as for swine. When made into hay, cattle are exceedingly fond of it. The flower and leaves are apt to separate from the stem, for which reason great care should be taken that it is not made brittle by too much exposure to the sun. It is best cured, as far as may be, in cock, and should be carted after the dew begins to fall. When properly dried, salt is used advantageously, as it may be housed with safety, more green than any other hay. This prevents fermentation and heating, and it is kept in better order. Many in this vicinity not only salt their clover, but all other hay. Lord Somerville observes that he "uses half a bushel of salt to a ton, and its benefit surpasses all belief, producing the best possible effect in color, flavor, and general result;" with damaged hay, he says "it is a great restorative."

The benefit of salt in the culture of the soil being now so generally acknowledged, and the use of it so necessary for cattle in the interior or remote from the sea coast, it is difficult to assign a reason why its use is not more prevalent. To land highly manured, two to four pounds of seed in this neighborhood is used. But in the interior some apply eight pounds, and many more. One hundred pounds cut July 6th, gave twenty-five pounds.

The white clover (trifolium repens) is an abiding grass, sending out roots from every joint, and forming a close mat on the ground, and is very excellent for pastures. But it is found to afford so little to the scythe as to discourage the culture thereof. One hundred pounds cut June 26th, gave twenty-seven pounds.

Of the grasses which grow in our meadows two only have been tried. The fowl meadow, which Dr. Elliot supposed to have been brought to Dedham by birds, is said to be the Poa nemoralis, or marsh meadow grass of England.

It is an excellent grass and deserving of culture. It is believed, however, to have extended itself more by its shedding its seed early than by any artificial means. One hundred pounds cut July 23, give fifty-three pounds.

The common grasses of our wet meadows it is believed, are various kinds of carex. This, in all its varieties, is a poor grass, and where the land can be ditched and made to produce a better growth, the means should be taken. It is a bad economy to flood lands with mere water for a long time, to increase a nearly worthless burthen. The effect is to destroy all sweet nutritive tender plants. One hundred pounds cut 23d July, gave forty-four pounds.

The "marine fox-tail grass." which is the prevailing grass of our salt marshes, we receive from nature without knowing how to aid in its increase. One hundred pounds, cut July 18th, gave sixty pounds.

The black grass (juncus bulbosus) grows principally where the water is freshened by streams from the uplands. It is the most valuable salt grass we have, and but little inferior to upland grass, we know no means of artificial increase. One hundred pounds, cut July 18th, gave thirty-eight pounds.

We have too far trespassed on the time of the readers to do more than allude to some of those grasses which have been introduced and proved unsuitable for our culture.

The wild oat grass (Avena elatior) with the rye, ray or darnel grass with which it is said to be confounded, are often seen in our pastures and meadows, but animals seldom touch them. They have a strong woody fibre and afford little nutriment, though well spoken of south of us as well as in Europe.

The burnet scarcely shows itself for a year and then disappears.

The succory has been praised by Mr. Arthur Young, that distinguished agriculturist, who sent it to Gen. Washington. It has been introduced here, is disliked by cattle, and has become one of the most troublesome intruders in our fields. These, with the St. Foin and lucerne and many others, have passed away and seem to have ceased with us to excite expectation. Of the orchard grass or cocks-foot (dactylis glomerata) the trials I have witnessed do not enable me to speak so decisively as one of the trustees, Mr. Prince does who approves of it. It may be considered as in a course of experiment.

My desire, sir, in the preceding, has been to aid in exciting an attention to the best means of culture for our grass lands. The process of sowing grass seeds was far from universal within the

recollection of many in this country, and is lamentably insufficient now. Its neglect has been complained of even in Europe. It has been contended that nature would furnish according to her own capacity the power of increase in this particular. Thus the soil was to be furnished with the means of promoting vegetation by labor and art. But here these were to stop, and the stimulating principles were to evaporate and be wasted, and one or two good crops lost in waiting for this slow process.

But the blindness of this doctrine is vanishing before the light and improvement of the present age. We learn from experience that the earth presents to industry and skill her ceaseless efforts, and never pauses but from our neglect.

Subjoined is a table showing the loss of weight in drying grasses. The white clover of 1822, was taken in the shade. That of 1823, from a light warm soil exposed to the sun. The red clover in 1823, was taken in the first year of its product, in close growth, and for that reason falls short of 1822. The salt grass of 1822, was, I have reason to suppose, a second growth, which accounts for the difference of the two years.

	1822	1823
100 lbs. of green white clover gave—	17½	27
" " red clover	27½	25
" " herds grass	40	39
" " fresh meadow	30	44
" " salt grass	39	60
" " 2d crop or English Rowan	18¾	19
" " corn stalks	25	25
" " spiked oat grass gave		50
" " red top		46
" " Rhode Island		40
" " couch grass		48
" " marine black grass		38

MONTHLY COMMERCIAL REPORT.

For the Farmers' Register.

The resumption of specie payments, as noticed last month, was of very short duration. The *runs* on the United States Bank of Pennsylvania are stated to have reached to about six million dollars, and on the other banks of Philadelphia to about an equal sum, when they were obliged to succumb on the 4th inst. The banks of Delaware and Maryland readily followed the example. Those of Richmond declined to do so, as did some of their branches, but in this respect there is no unity of action. It would be impracticable, of course, for banks to pay specie, whenever demanded, for checks based on deposites of the notes of other banks, or on collections made in other places; and those banks which profess to pay specie, confine such payments to their own issues. They must do this, or refuse deposites of current money, which would be a greater inconvenience to the community than suspension is. This course is pursued by all specie paying banks.* A different one is impracticable, and it is unreasonable to require it.

This failure of the United States Bank, (for failure it is called,) which has caused this renewed suspension, and the consequent derangement of money matters, have increased the pressure which previously existed, and which now extends to New York. The depression of some stocks is enormous, for example, Indiana 6 per cent., 60! Illinois 6 per cent., 54!! United States Bank stocks, $23!!!† Vicksburg Bank stock $5½!!!! Many other state and bank stocks are greatly depressed, and those of rail roads, and other joint stock companies generally are in a similar condition. Thus the great mass of what were considered secure investments, is unavailable and unproductive, and many persons are deprived of the income on which they relied for support.

In the prices of produce in Virginia, there has been little change during the month. Tobacco, $4 to $8. Cotton, 8½cts. to 10½cts. Flour, $4½ to $4¾. Corn, 42cts. to 45cts. The recent accounts from Europe (to 4th inst.) are rather favorable for cotton and tobacco, but not for flour and grain.

The warlike aspect which Europe presented a few months ago, has become pacific, except that the means are retained, without any threat of being used. Even the Celestial Empire is said to have lowered its tone towards Great Britain, finding herself worsted in the conflict. An effort has been made to raise a belligerent tone here, but it found no response. Without any preparation for the encounter, it was worse than idle to raise the shout, and even with preparation, it were folly to act precipitately, before resorting to a pacific course.

Exchanges in New York are thus quoted.

On Boston par.			
Philadelphia,	4½ dis.	Mobile,	9 dis.
Baltimore,	4 "	N. Orleans,	6½ "
Virginia,	4 "	Missouri,	9 "
N. Carolina,	4½ "	Tennessee,	14 "
Charleston,	3 "	Kentucky,	8½ "
Savannah,	5 "	Ohio,	8½ "
Augusta,	9 "	Mississippi, worthless.	

London 8 per cent. premium.

Feb. 26th. X.

SHELL MARL FOUND IN A NEW REGION OF MARYLAND.

To the Editor of the Farmers' Register.

Somerset, Md., Feb. 3d, 1841.

I am pleased to be able to say, that a deposite of fossil shells has been discovered, within a few weeks, in Somerset county, Md., on the farm of Theodore G. Dasheill, esq. I have seen and examined a specimen of this shell marl, and although I did not analyze it, from its appearance it is fine marl. I have seen much of the shell marl

* Being opposed generally to the opinions of our much respected commercial correspondent in regard to banks, it is perhaps enough for us to enter a general disclaimer, without objecting to any particular passage. Otherwise we should positively oppose the above description of "specie paying banks," as inapplicable—but which is *quite applicable* to all the banks of Virginia and other states, (at least south of New York,) which now *profess* to pay specie, but *do not*, and probably never will pay it again, to such extent as to deserve the name of "specie-paying," or their paper being called truly *convertible into specie*.

[Ed. F. R.

†Since, United States Bank stock has fallen to $18¼.

[Ed. F. R.

of Talbot county, Md., and recognize that so recently discovered in Somerset to be the same material. I have been informed that the bed of marl on Mr. Dashiell's land is about two feet below the surface, and that it is believed to be extensive. This fact is important to be made known to the public. As Professor Ducatel, the state geologist, has intimated a belief that if such deposites exist in Dorcester, Somerset and Worcester counties, they lie too deep for practical purposes. I have no doubt there is much of the fossil shell deposite within our county. I have used lime quite freely on my land, and am satisfied with the results, and, perhaps, some day I may give you a few pages from my memorandum book.

This first discovery of shell marl in this locality is, indeed, important, and we trust its value will be fully availed of. The promised communications, and any others, from our correspondent, will be very acceptable.—Ed.

CORN SHELLER.

From the Maine Farmer.

We examined a very simple machine the other day for shelling corn, invented and patented by a Mr. Dinsmore of Vermont.

A piece of plank, say a foot long and eight or ten inches wide, is made a little concave on one side. This is filled with nails without heads projecting about a quarter of an inch: at one end a handle projects to take hold of, and at the other is a hole through which a bolt goes loosely which pins it to another plank of similar size, but made convex, so as to fit the concavity of the other, and also filled with nails as the first one; this fastened firmly to a rude frame and the whole set over a tub or basket.

When you wish to shell an ear, you raise the moveable side, put it in, and then bring it (the moveable side) down, pressing the ear gently. One movement downward is enough to shell the ear. In this way a *boy*-power can be much more effectually and economically employed in shelling corn than in any other way for the same amount of expense of apparatus. Mr. Wm. A. Herick of Greene has the patent right for Kennebec county. Any farmer can make one, and every farmer should have one, provided he raises any corn to sell.

BONE MANURE IN ENGLAND.

From the Farmers' Gazette.

In 1823, bones to the amount of £14,395 were imported; in 1837, they had increased to £254,600.

CONTENTS OF THE FARMERS' REGISTER, NO. II. VOL. IX.

ORIGINAL COMMUNICATIONS.

	Page.
Address of Dr. W. S. Morton, President of the Agricultural Society of Cumberland	65
Agricultural meetings and discussions	68
Proposed importation of sheep and hogs, and remarks	79
Manuring with purchased marl and lime	80
Profits of a Kentucky farm	83
Green-sand in Georgia	86
Preservation of woodland. Cultivation of the locust tree, &c.	95
Kentucky blue-grass, or green-sward. Remarks on grasses—their botanical and vulgar designations, &c.	113
The wire grass of Virginia	115
Culture of Indian corn	116
Experiments with, and observations on green-sand earth, as a manure, on Coggin's Point farm	118
Liming in Fairfax county	124
Directions for killing the chrysalides and preserving cocoons of silk-worms	124
Monthly commercial report	127
Shell marl found in a new region of Maryland	127

SELECTIONS.

Second agricultural meeting at the State House, Massachusetts	69
Berkshires no longer Berkshires	70
Rohan potatoes	71
Raising pork	72
Pools for water—Rotting hemp	72
Quick lime on silk-worms to prevent disease	73
Ruta baga	74
Population statistics	75
Causes of bad currency	77
An essay on making compost heaps	77
Cabbage worms	80
Effects of the stock on grafted fruit	81
Peat meadows	82
Means of enriching soil	82
Saving manures	83
Sausage making	83
Culture of the peach tree	85
Rule for ascertaining the weight of cattle, sheep and hogs	86
Sub-soil ploughing	87
Observations on cattle and roots	90
Georgia fever among horses	90
Extracts from the aniversary oration delivered before the state agricultural society of South Carolina—By Gov. George McDuffie	91
Hogs	97
Measuring corn in bulk	98
Variety and extent of vegetable life	99
Address before the Queen Anne's County Agricultural Society, by Wm. Carmichael	99
Asparagus	102
New post office regulations in England—Seed sent by post	105
Mode of preparing sauer kraut	105
Common salt as a manure	105
Large hogs	113
Grasses—botanical and vulgar designations and synonymes	114
Damp stables	117
Grasses	125
Corn sheller	128
Bone manure in England	128